

WM-F77

SERVICE MANUAL

*US Model
Canadian Model
E Model*



'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

SPECIFICATIONS

Similar Mechanism Type	WM-55
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Radio section

Frequency range FM: 87.6–108 MHz
AM: 530–1,605 kHz

Antenna FM: Headphone cord antenna
AM: Built-in ferrite bar antenna

Tape player section and general

Tape track 4-track 2-channel stereo

Fast winding time Approx. 2 min. with Sony C-60 cassette

Frequency response (DOLBY NR OFF)

40–15,000 Hz (with the TAPE SELECT switch set to CrO₂/METAL)

40–15,000 Hz (with the TAPE SELECT switch set to NORM)

Power output

headphones:

20 mW + 20 mW (at 10% harmonic distortion) load impedance 18 ohms

Power requirements: 3 V DC

Two size AA batteries (IEC designation R6)

DC IN 3 V jack accepts:

- Sony AC-D2 AC power adaptor (optional) for use on 120 V AC, 60 Hz
- Sony EBP-500 battery case (optional) for use on two size D batteries (IEC designation R20 batteries)
- Sony DCC-70 car battery cord (optional) for use with 12 V car battery

Battery life:

(hours)

Batteries	FM reception	Tape playback
Sony SUM-3 (NS) New Super or Eveready No. 1015 Heavy Duty batteries	Approx. 16	Approx. 4
Sony Eveready AM3 alkaline or Eveready No. E91 alkaline batteries	Approx. 28	Approx. 8

For maximum performance we recommend the use of alkaline batteries.

Dimensions:

Approx. 114×85.5×35.4 mm (w/h/d) (4 $\frac{1}{2}$ ×3 $\frac{3}{8}$ ×1 $\frac{7}{16}$ inches)

incl. projecting controls

Approx. 111×81×33.5 mm (w/h/d) (4 $\frac{3}{8}$ ×3 $\frac{1}{4}$ ×1 $\frac{3}{8}$ inches)

not incl. projecting controls

Weight: Approx. 300 g (10.6 oz) incl. batteries, not incl. other accessories

FEATURES

- Auto-reverse function changes the tape playback direction without turning the cassette over.
- Dolby* NR system reduces tape hiss noise during playback.
- High-performance metal tapes can be played back as well as standard tapes.



FM/AM
STEREO CASSETTE PLAYER
SONY®

TC

SERVICING NOTES

● Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

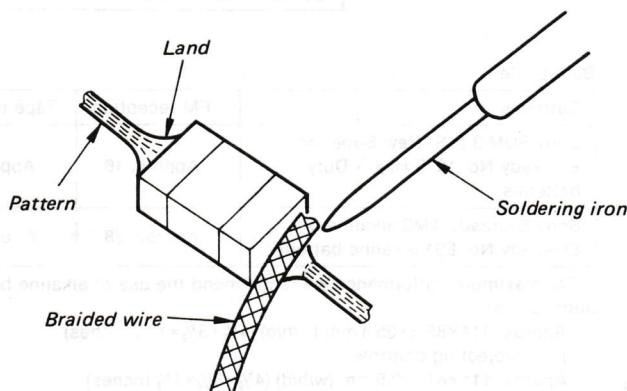
Precautions for replacement

1. Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.
2. Never re-use a disconnected chip component. Dispose of all old chip components.
3. To protect the chip component, heating time for attaching the component should be within 3 seconds.

○ Removing chip components

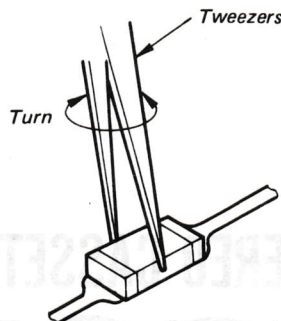
(1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off. Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

(1) Applying solder to land on one side

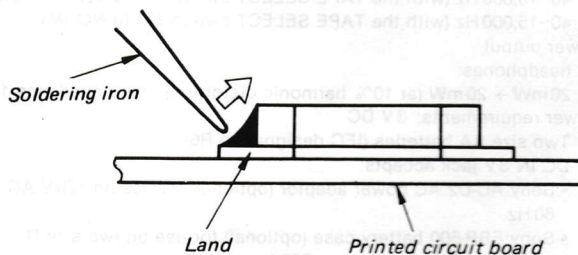
Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.

Small quantity of solder



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



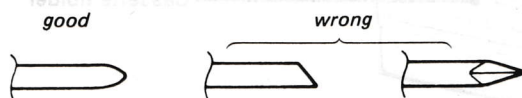
(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

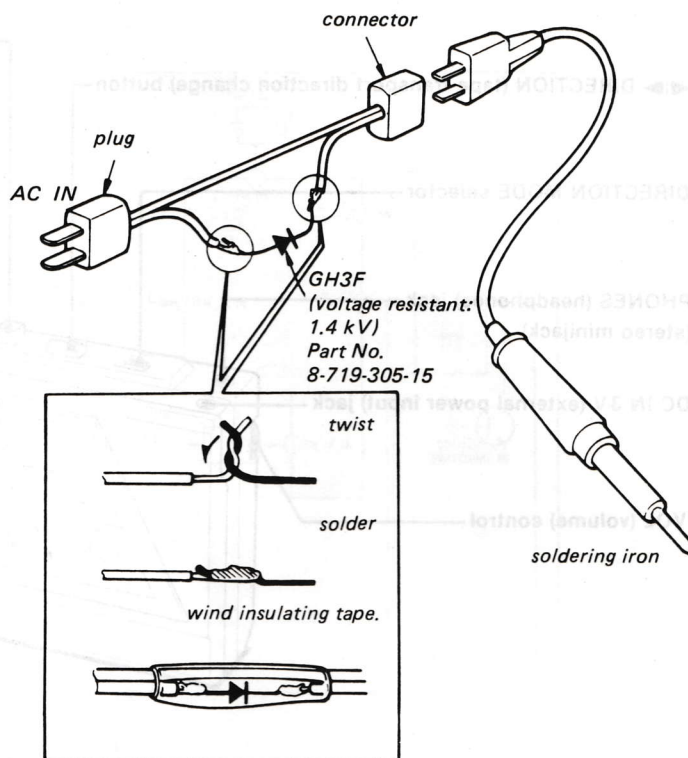
● Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at $270^{\circ} \pm 10^{\circ}\text{C}$ during repairing.
You can maintain the temperature of the soldering iron around 270°C by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Tip of soldering iron

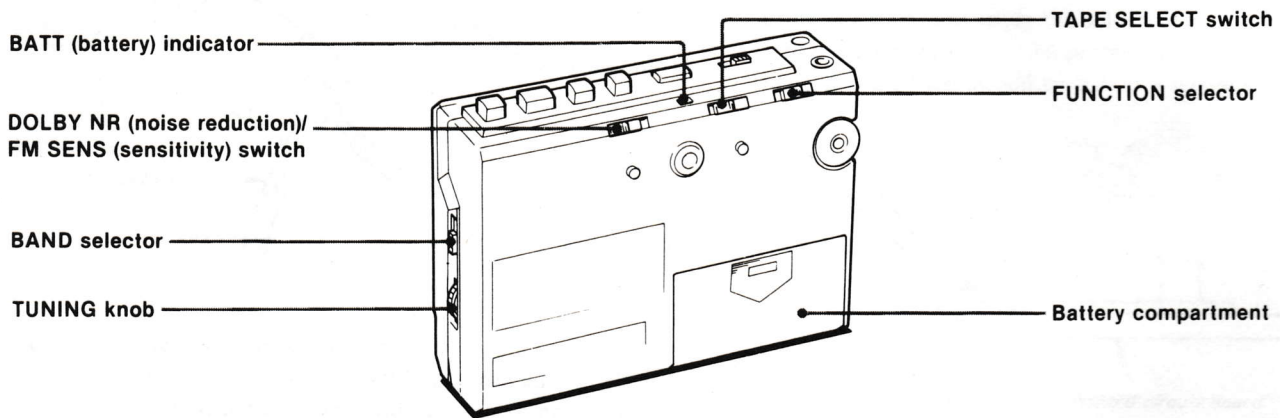
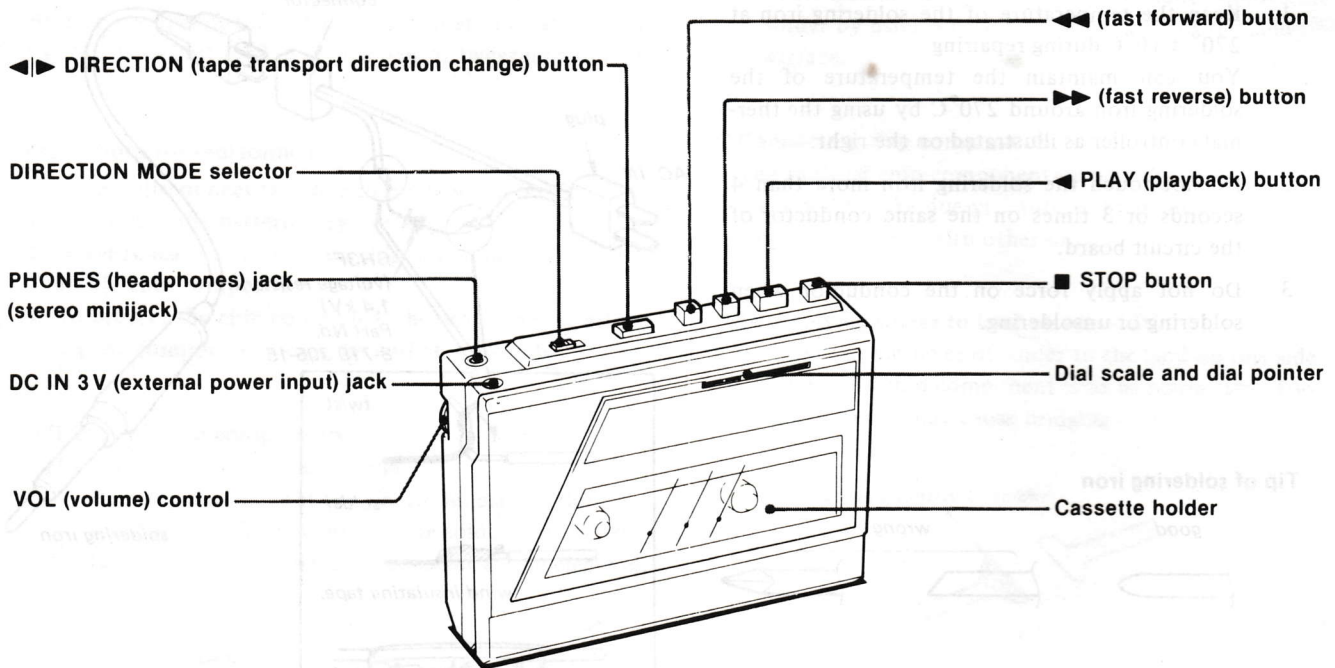


To make thermal controller of soldering iron

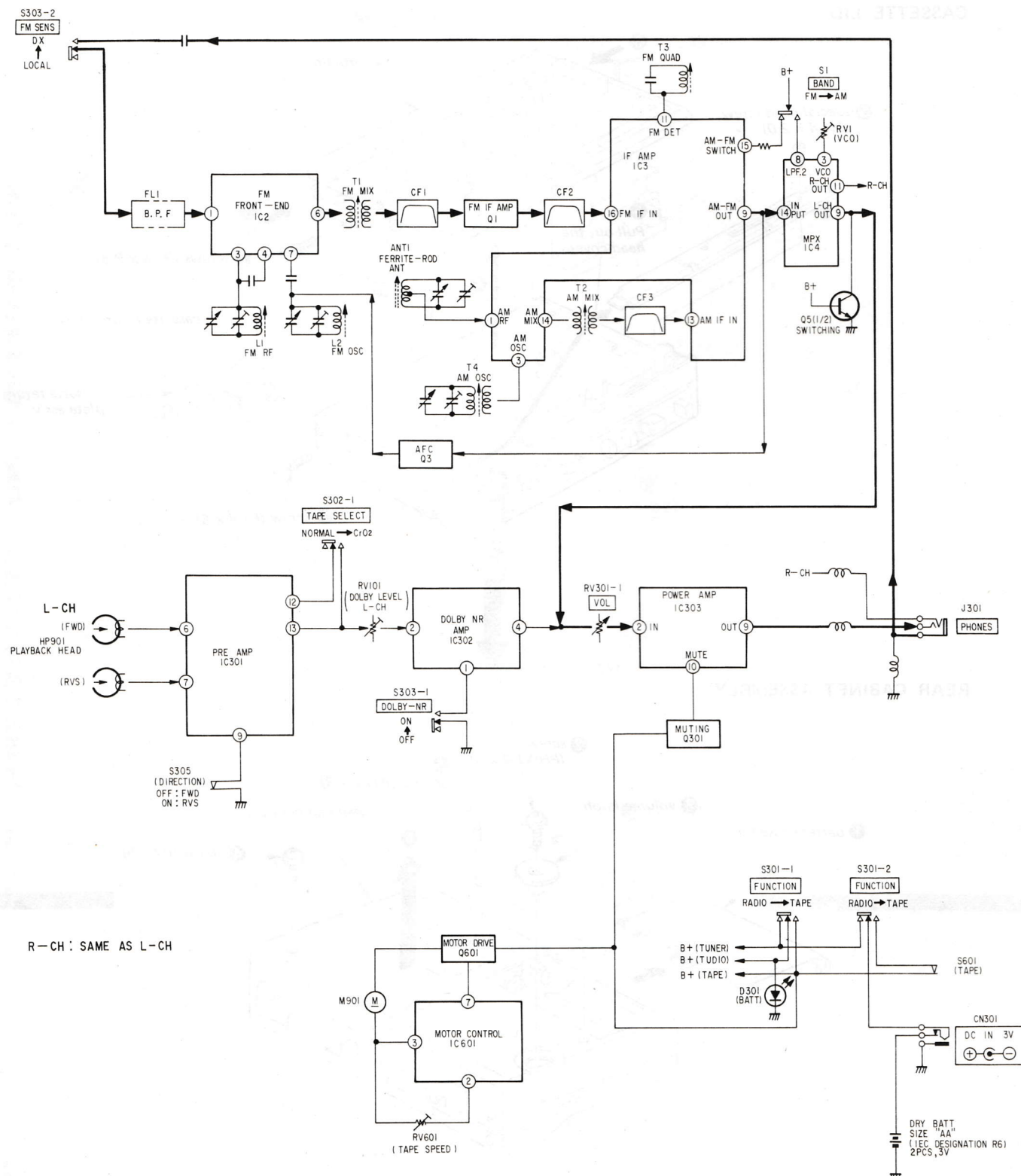


SECTION 1 OUTLINE

1-1. PARTS IDENTIFICATION



1-2. BLOCK DIAGRAM



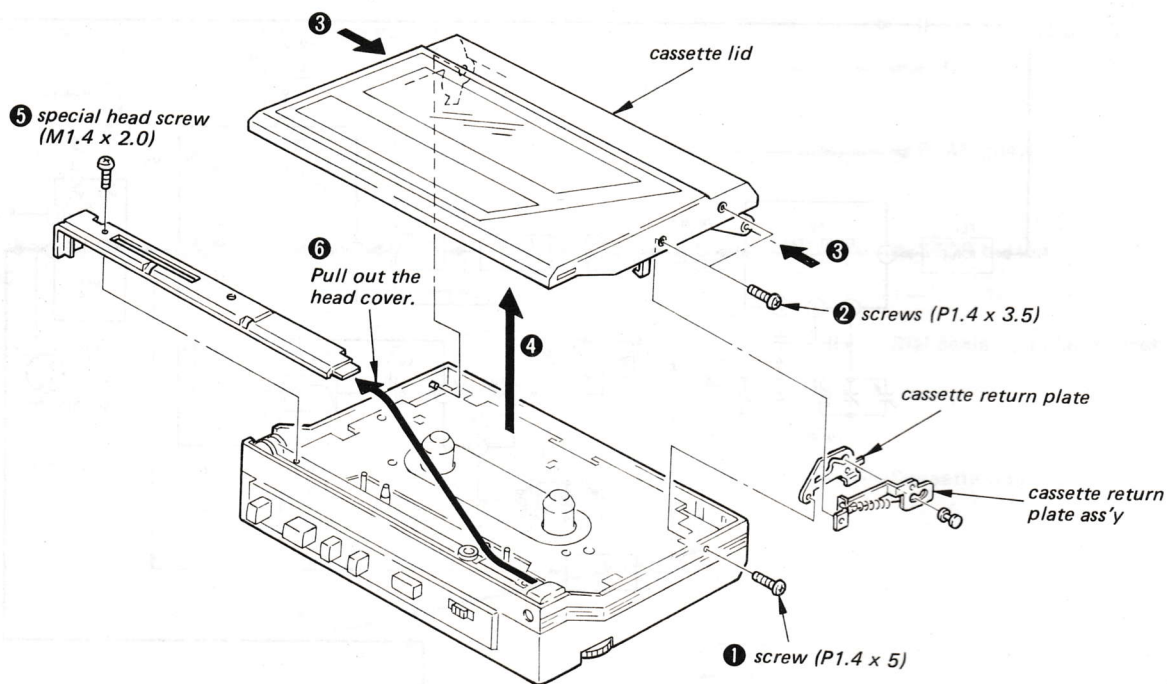
SECTION 2

DISASSEMBLY

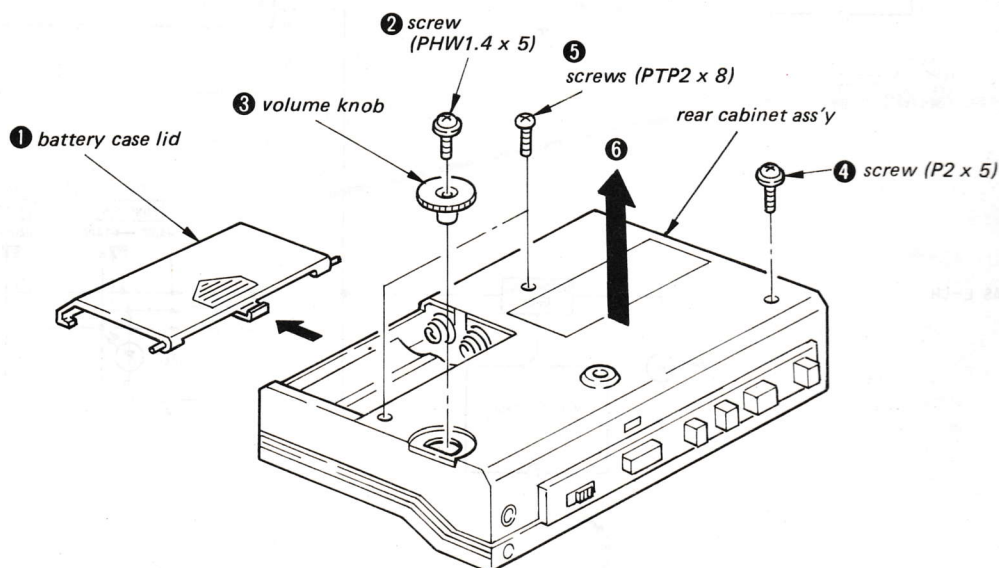
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

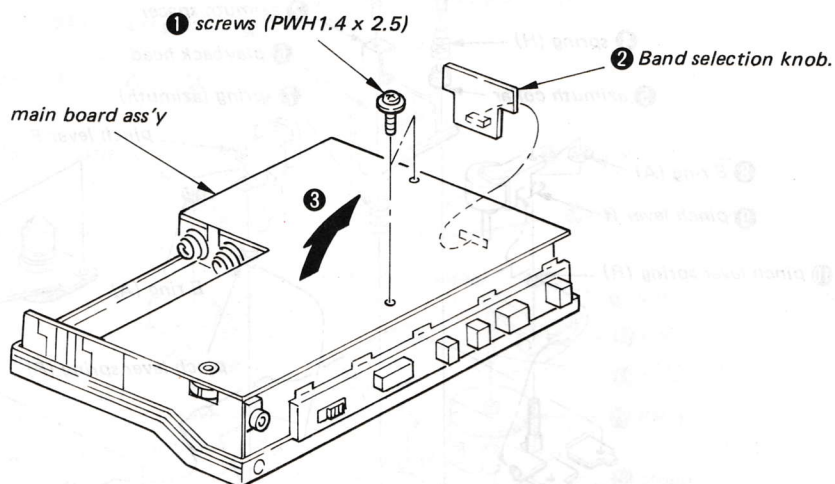
CASSETTE LID



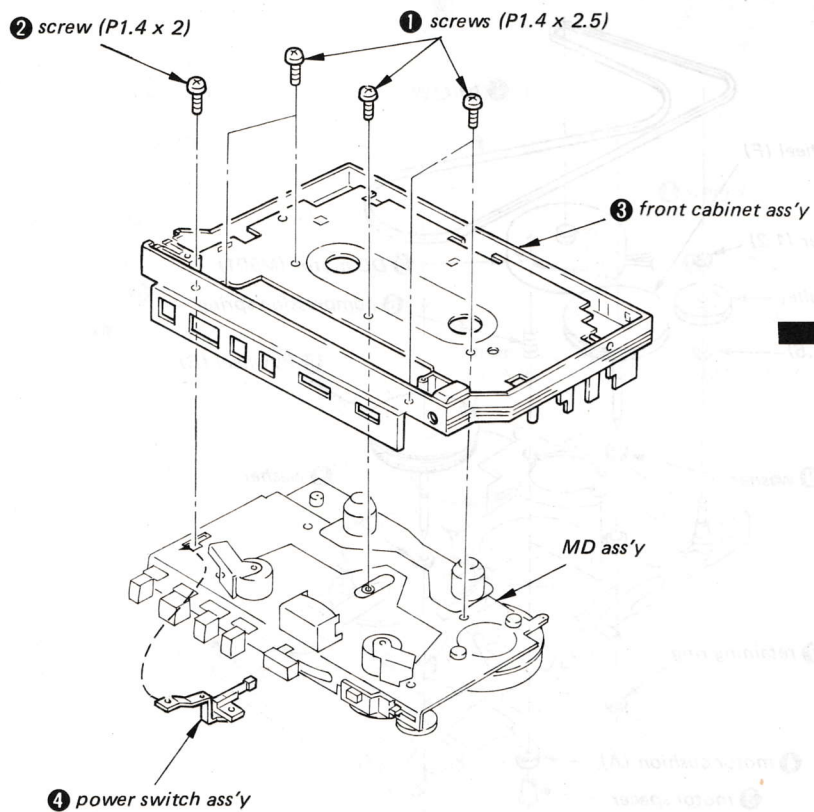
REAR CABINET ASSEMBLY



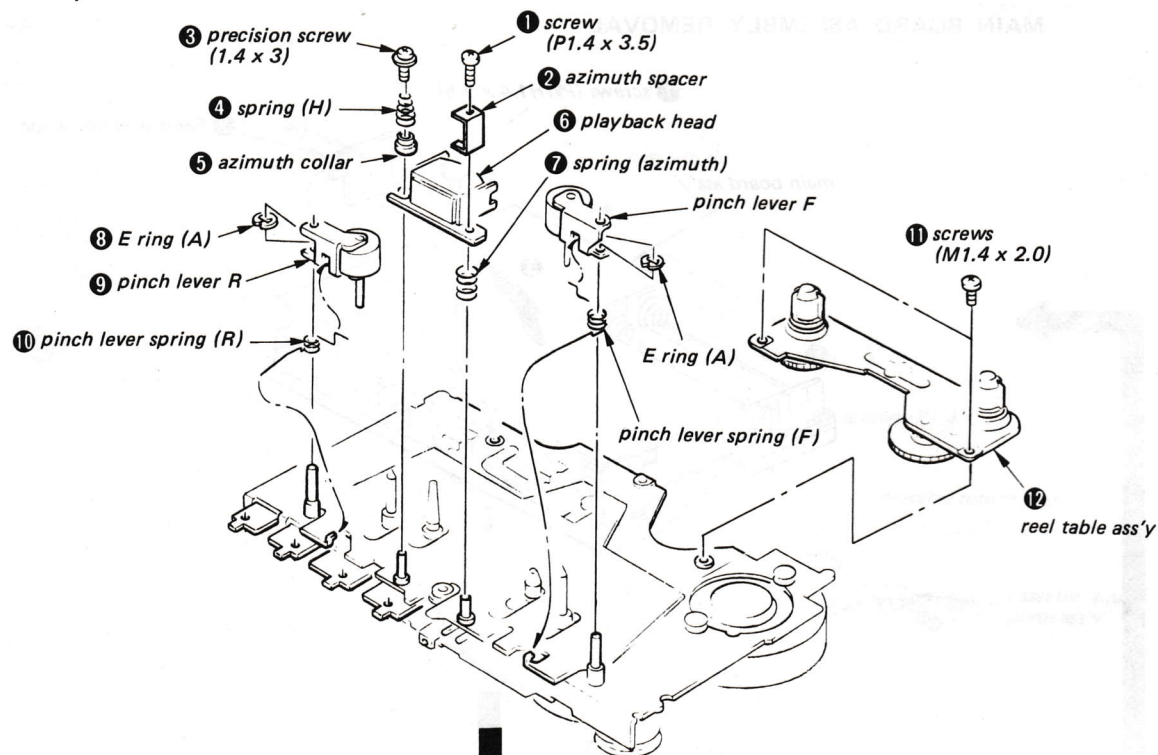
MAIN BOARD ASSEMBLY REMOVAL



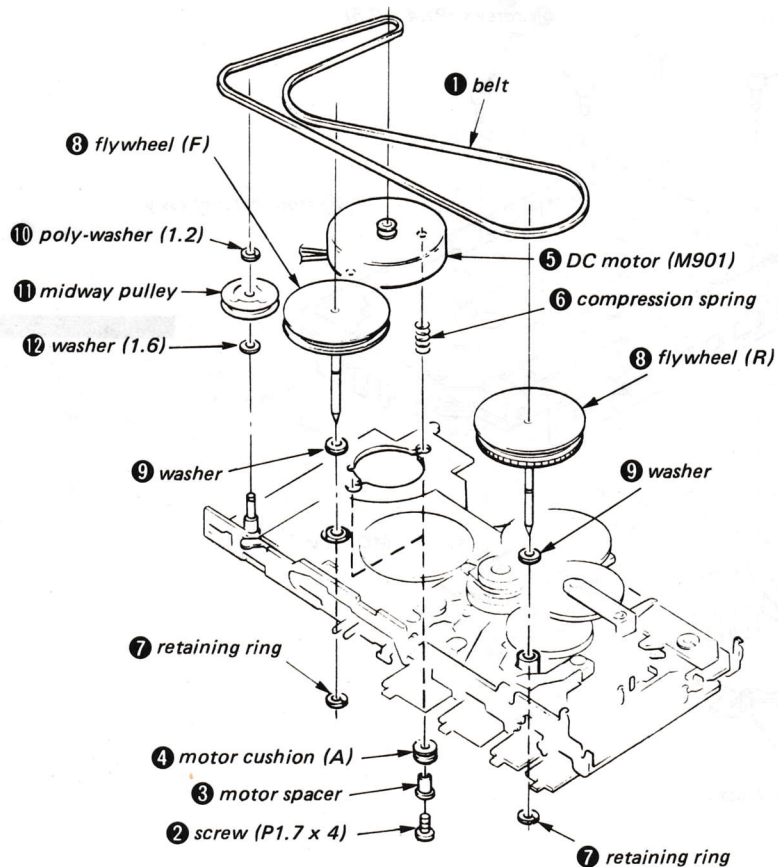
MD ASSEMBLY



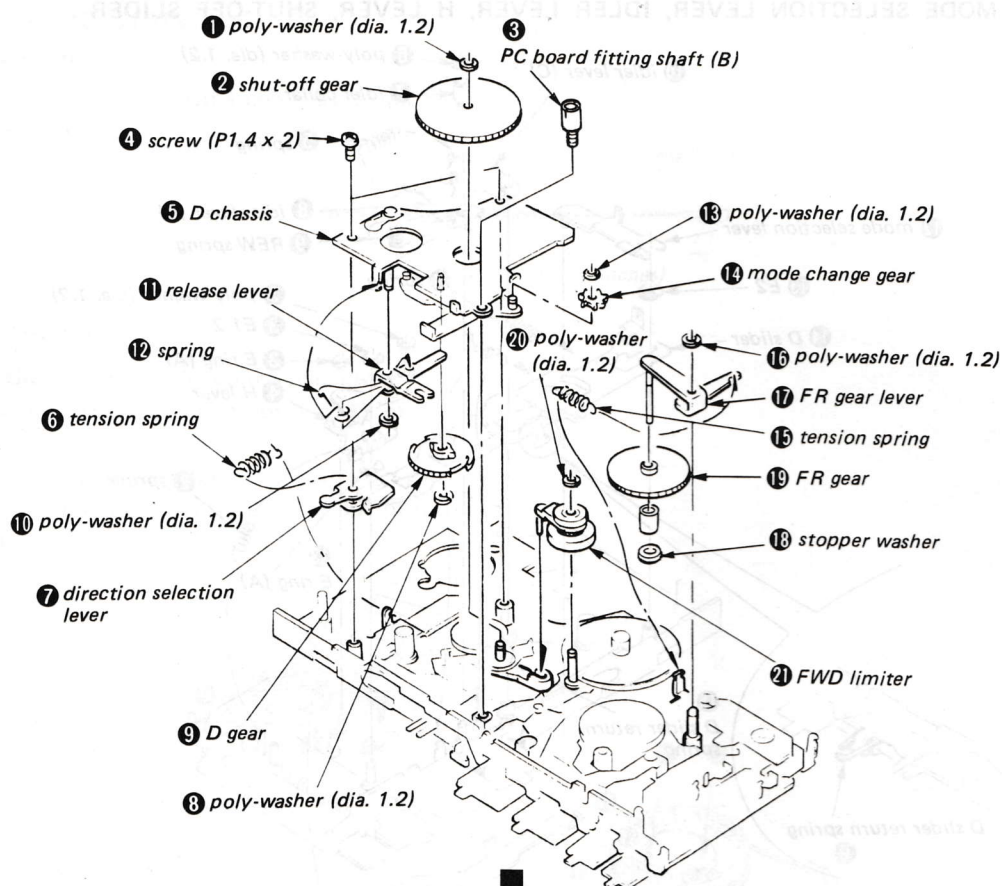
PLAYBACK HEAD, PINCH LEVER



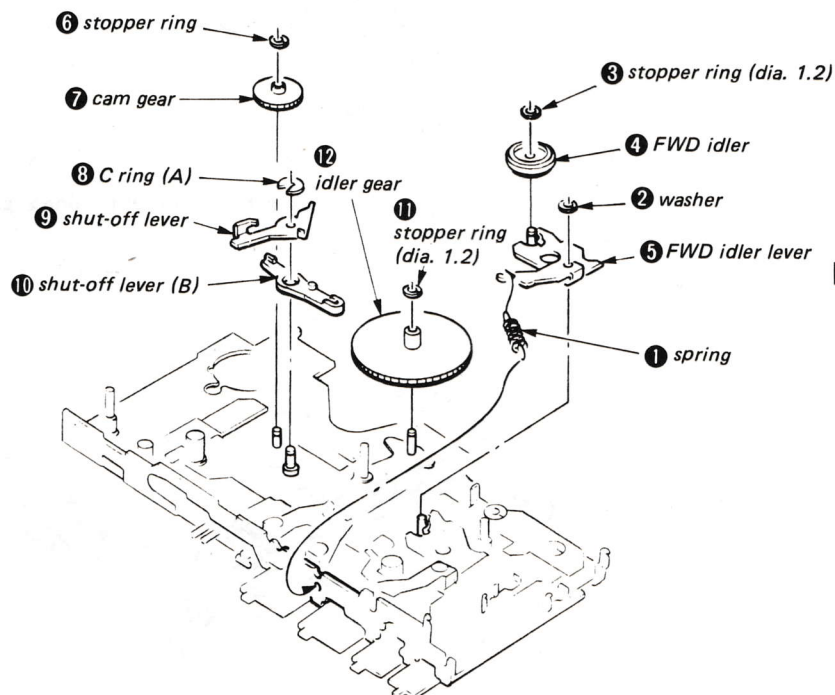
DC MOTOR, FLYWHEEL, MIDWAY PULLEY, BELT



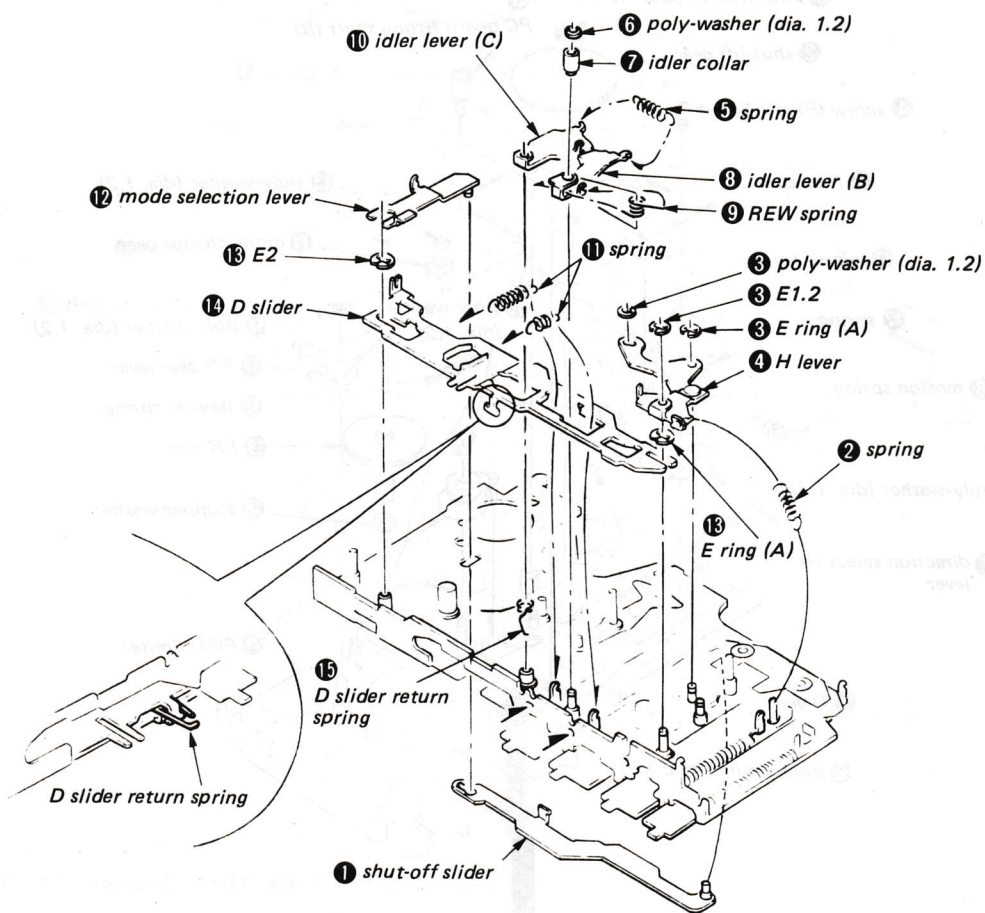
FWD LIMITER, FR GEAR LEVER, DIRECTION SELECTION LEVER, D CHASSIS, SHUT-OFF GEAR



IDLER GEAR, SHUT-OFF LEVER, CAM GEAR, FWD IDLER



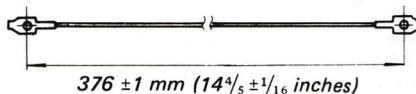
D SLIDER, MODE SELECTION LEVER, IDLER LEVER, H LEVER, SHUT-OFF SLIDER



2-2. DIAL CORD STRINGING

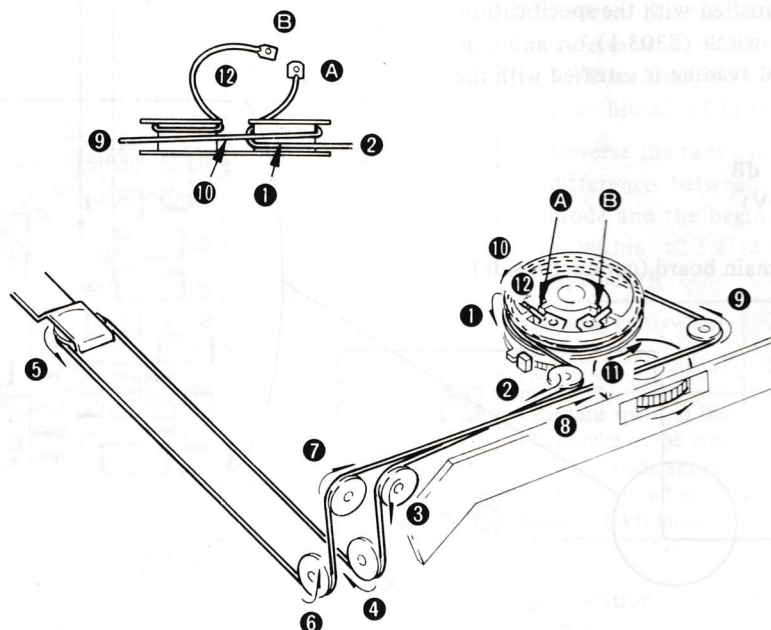
1. Preparation

Prepare the dial cord ($\phi 0.3 \text{ mm} = \phi 1/27 \text{ inches}$) as shown in the figure.



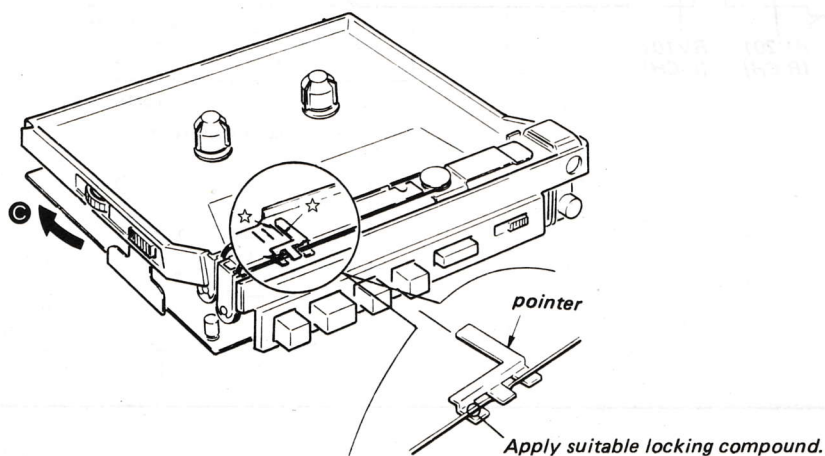
2. Dial Cord Stringing

- 1) Turn the dial drum fully counterclockwise.
- 2) Hook the fixed bracket to position **A** of the dial drum.
- 3) String the dial cord in the numerical order given.
- 4) Hook the fixed bracket to position **B** of the dial drum.



3. Dial Pointer Setting

- 1) Turn the tuning knob fully in the direction of the arrow **C**.
- 2) Set the pointer \star for \star as shown in the figure.



SECTION 3 ADJUSTMENTS

3-1. MECHANICAL MEASUREMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

playback head	pinch roller
capstan	rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (2.5V) unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102D	23 – 50 g-cm (0.32 – 0.69 oz-inch)
FWD Back Tension		less than 5 g-cm (less than 0.07 oz-inch)
REV	CQ-102RC	23 – 50 g-cm (0.32 – 0.69 oz-inch)
REV Back Tension		less than 5 g-cm (less than 0.07 oz-inch)
FF, REW	CQ-201B	more than 60 g-cm (more than 0.83 oz-inch)

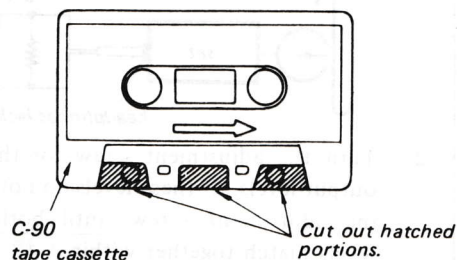
Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 60 g (more than 2.12 oz)
REV	CQ-403R	

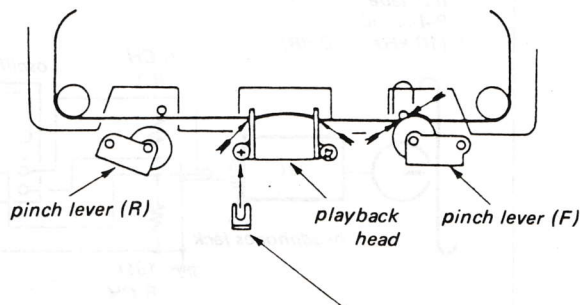
Tape Path Adjustment

Procedure:

1. Prepare an adjustment cassette as shown below.



2. Make the cassette in FWD and REV mode. Adjust the head heights with the head height adjustment shims and the tape guide height adjustment washers to eliminate tape curl and tape twist at the portions shown by arrow.



head height adjustment shim

Part No.	t [mm]
3-316-457-01	0.1
3-316-457-11	0.15
3-316-457-21	0.2

3-2. ELECTRICAL ADJUSTMENTS

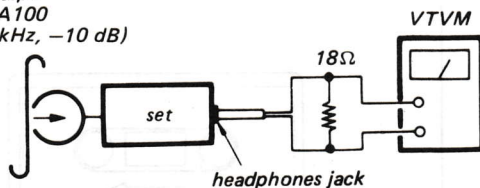
CASSETTE SECTION**Playback Head Azimuth Adjustment**

• Perform this adjustment both in FWD and REV modes.

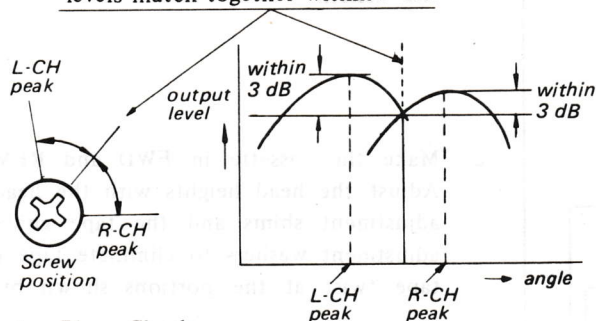
Procedure:

1. Mode: playback

test tape
P-4-A100
(10 kHz, -10 dB)

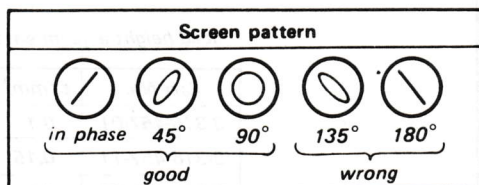
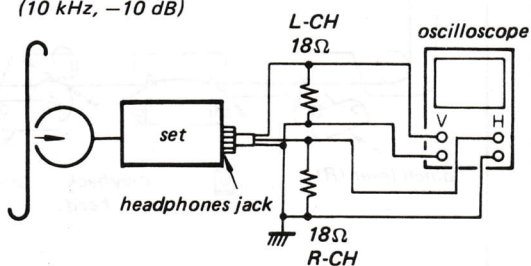
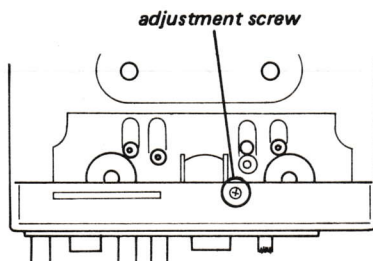


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3 dB.



3. Phase Check
Mode: playback

test tape
P-4-A100
(10 kHz, -10 dB)

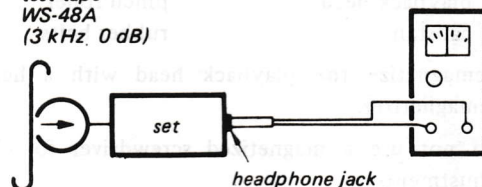
**Adjustment Location:****Tape Speed Adjustment****Setting:**

VOL control: mechanical mid

Procedure:

Mode: playback

test tape
WS-48A
(3 kHz, 0 dB)

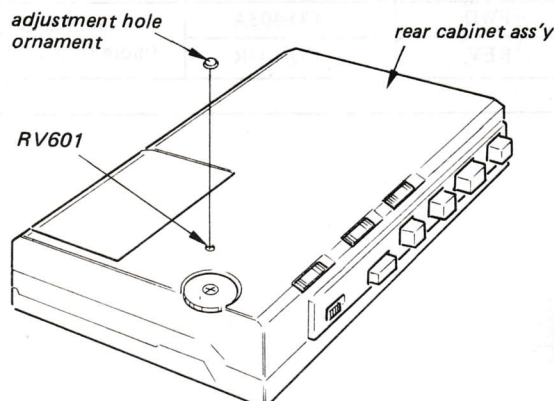


1. Play back the end of the tape in FWD mode and adjust RV601 for the specification.
2. Reverse the tape and confirm that the frequency difference between the beginning of the tape in FWD mode and the end of the tape in REV mode is within $\pm 2.5\%$ (± 75 Hz).
3. Reverse the tape again, confirm that the frequency difference between the end of the tape in FWD mode and the beginning of the tape in REV mode is within $\pm 2.5\%$ (± 75 Hz). If it is not, replace flywheel R.

marking on flywheel R	no slit	one slit	two slits
the tape speed of the beginning of the tape in REV mode against that of the end of the tape in FWD mode	no slit	one slit	two slits
	slow ←		→ fast

Specification:

Speed checker	Digital frequency counter
$\pm 1\%$	2,970 - 3,030 Hz

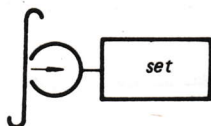
Adjustment Location:

Dolby NR Level Adjustment

Procedure:

TAPE switch: NORM
DOLBY NR switch: OFF

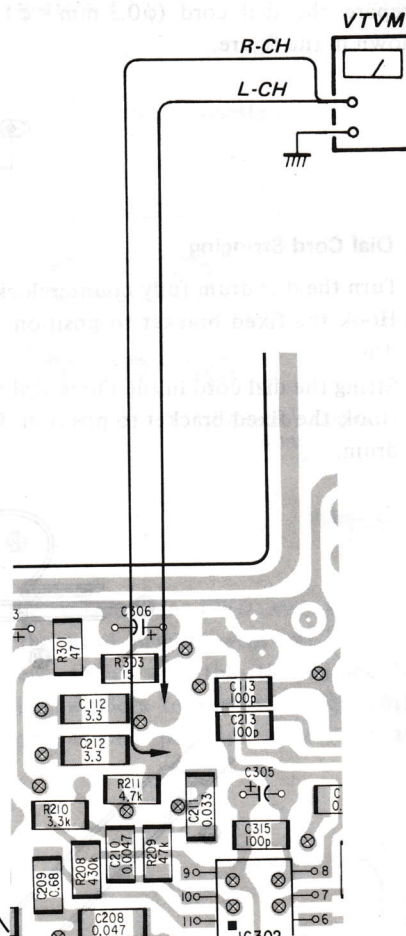
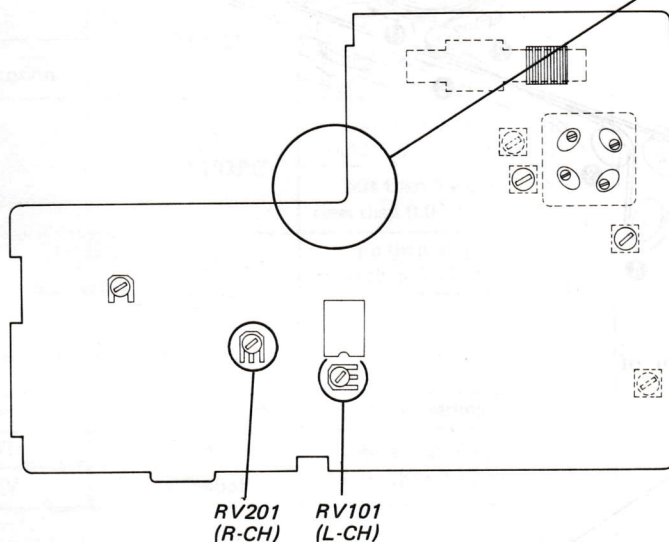
test tape
P-4-L300
(315Hz, 0dB)



1. Adjust RV101 (L-CH), RV201 (R-CH) so that VTVM reading is satisfied with the specification.
2. Turn DOLBY NR switch (S303-1) on and confirm that the VTVM reading is satisfied with the specification.

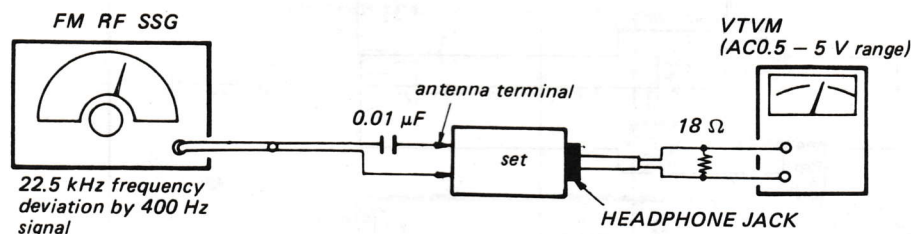
Specification: -20.5 ± 1 dB
(73 \pm 4 mV)

Adjustment Location: main board (conductor side)



RADIO SECTION

• FM SECTION



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VTVM.

86.5 MHz	109.5 MHz
L2	CT2

FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

109.5 MHz	86.5 MHz
CT1	L1

FM IF ADJUSTMENT

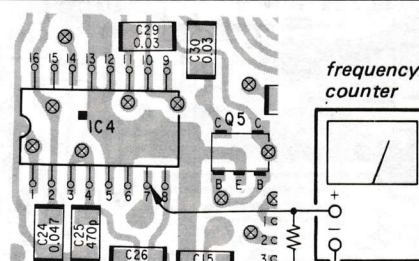
Adjust for a maximum reading on VTVM.

T1

[MAIN BOARD]

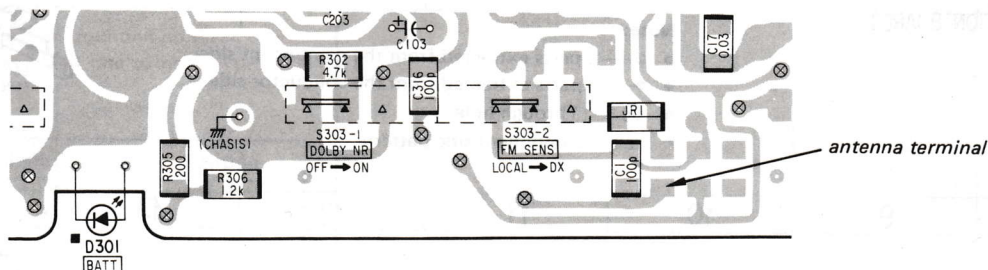
— FM antenna terminal —

VCO ADJUSTMENT

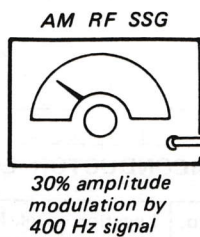


38 \pm 0.02 kHz

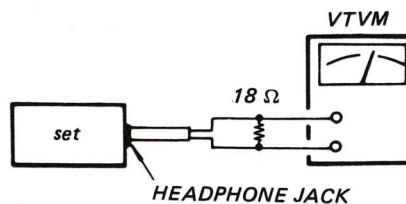
RV1



• AM SECTION



Put the lead-wire antenna close to the set.



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
520 kHz	1,680 kHz
T4	CT4

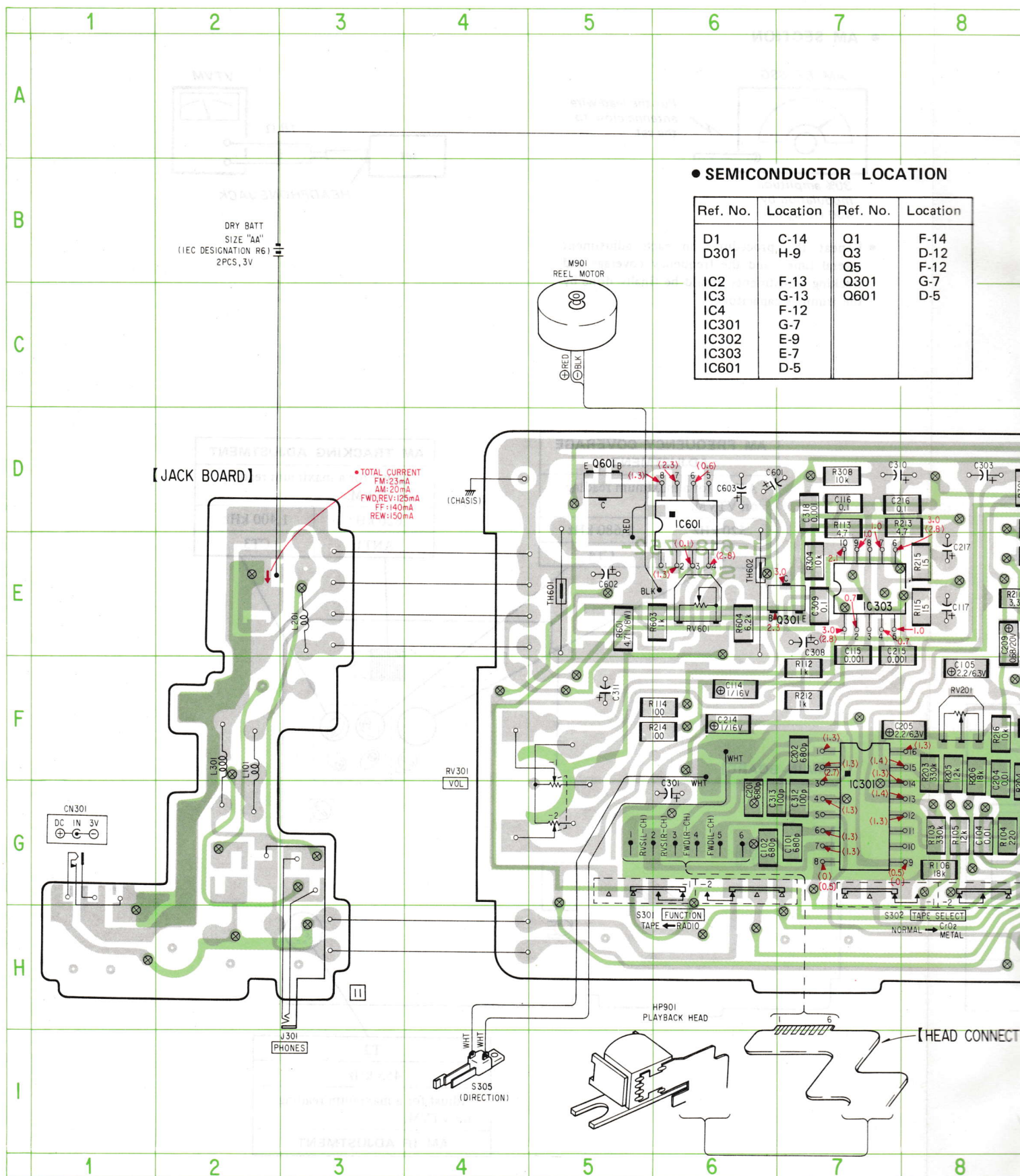
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
620 kHz	1,400 kHz
ANT1	CT3

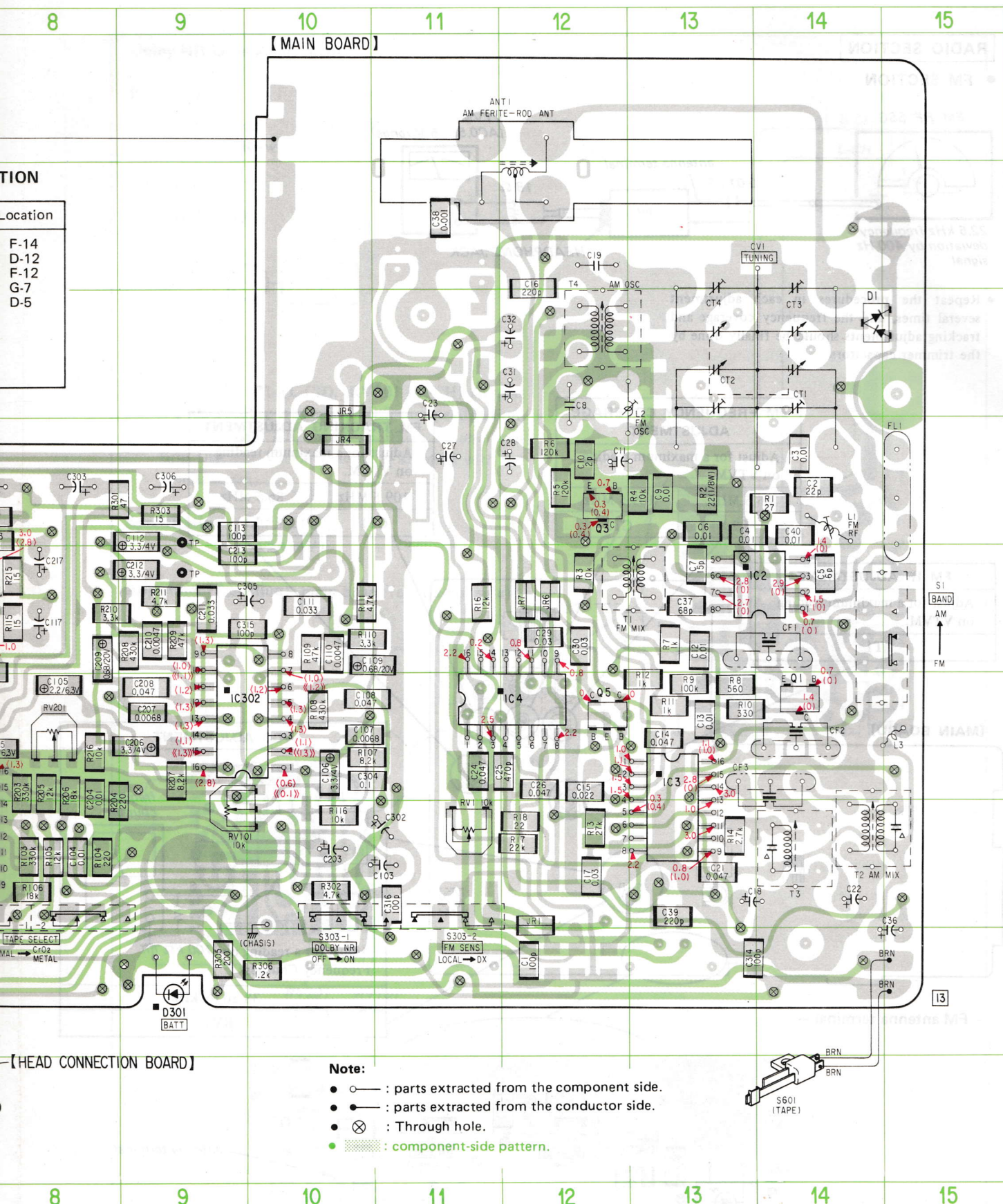
[MAIN BOARD]

T2
455 kHz
Adjust for a maximum reading on VTVM.
AM IF ADJUSTMENT

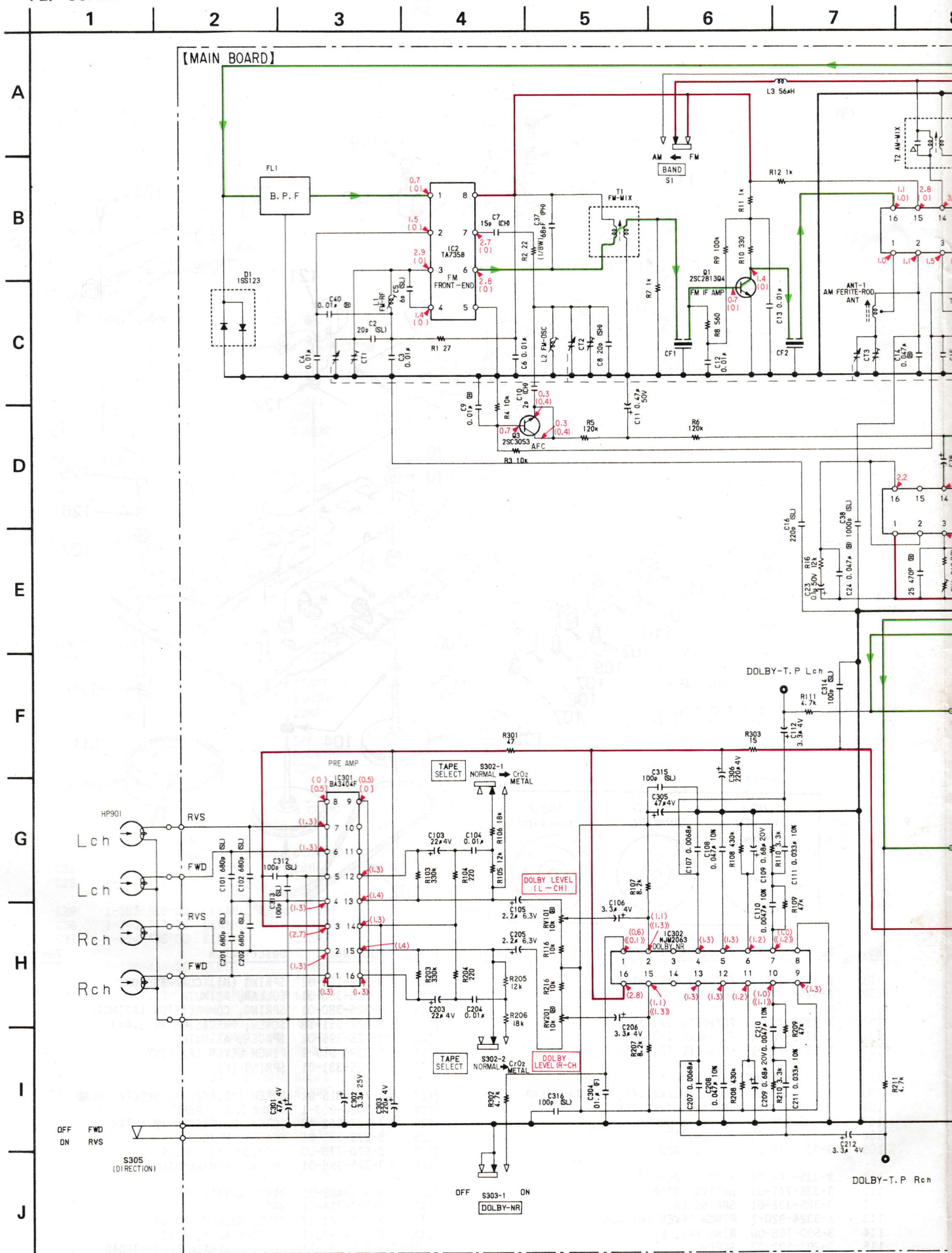
DIAGRAMS

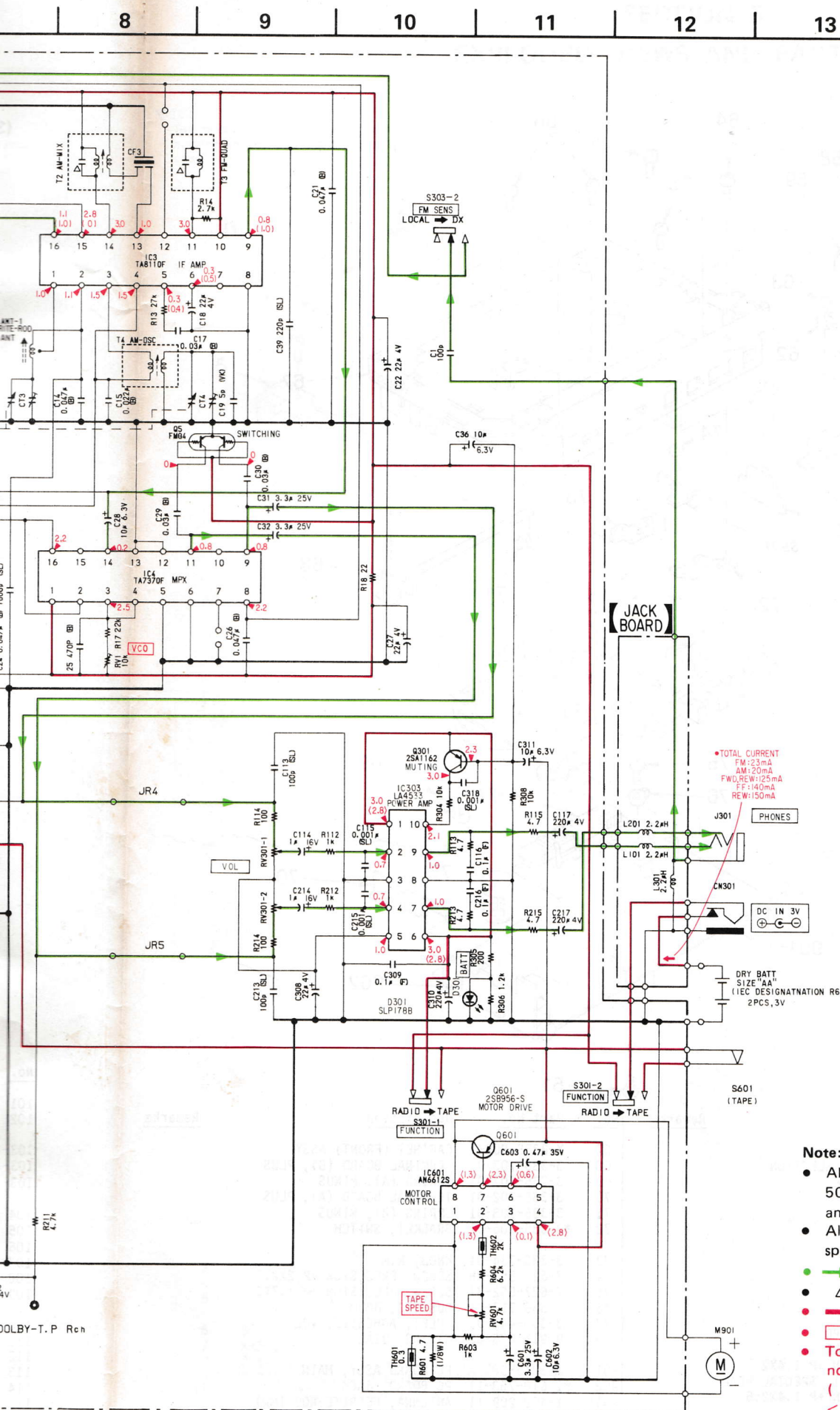
- See page 21 for Semiconductor Lead Layouts



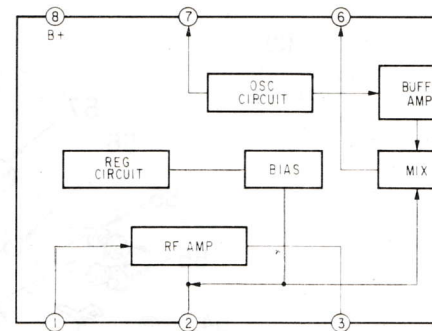


4-2. SCHEMATIC DIAGRAM

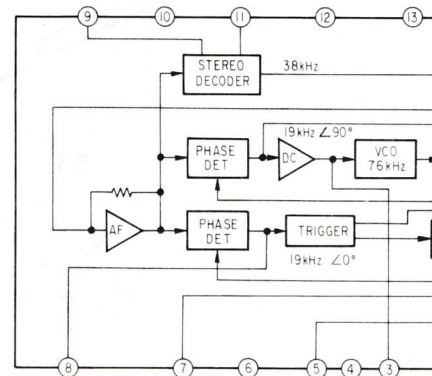




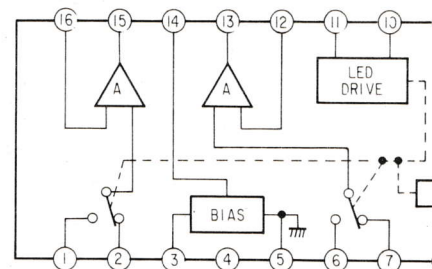
IC2 TA7358F



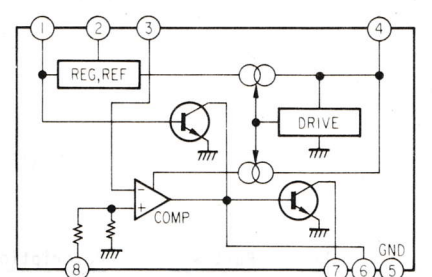
IC4 TA7370F



IC301 BA3404F

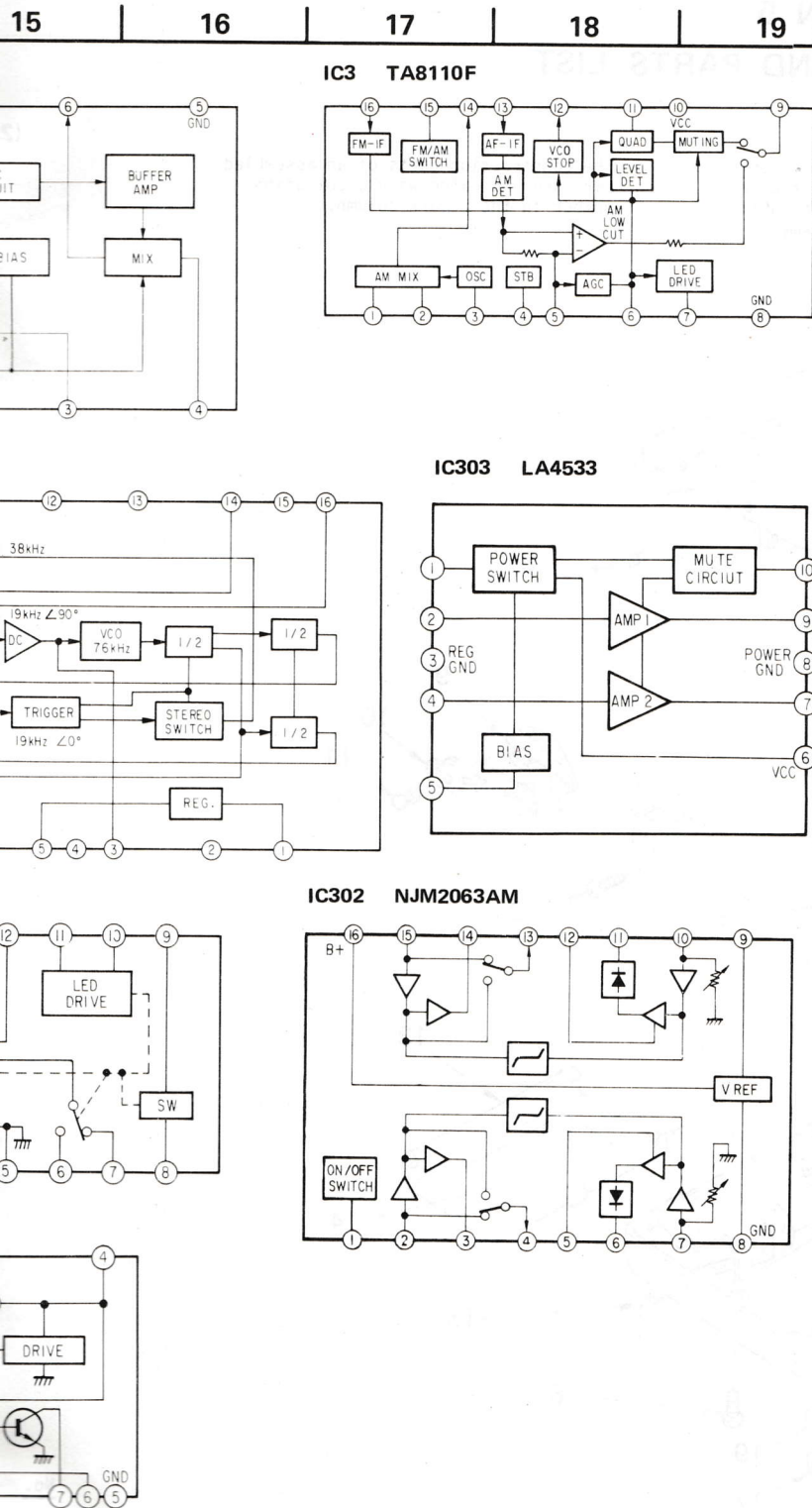


IC601 AN6612S



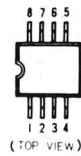
Note:

- All capacitors are in μF unless otherwise noted. pF : 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in Ω and $\frac{1}{10}\text{W}$ or less unless otherwise specified.
- : signal path.
- Δ : internal component.
- : B+ bus.
- : adjustment for repair.
- Total current is measured with no cassette installed. no mark: FM MODE
() : AM MODE
< > : TAPE (FWD) MODE
[] : TAPE (REV) MODE
<< >> : DOLBY ON MODE

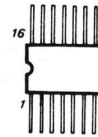


Semiconductor Lead Layouts

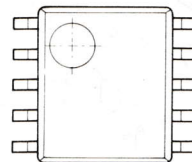
A

**AN6612S
TA7358F**


B

**BA3404F
NJM2063AM
TA7370F
TA8110F**


C

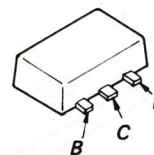
LA4533M


D

E

**2SA1162Y
2SA812
2SC2813Q4
2SC3053**


F

2SB956


G

H

I

J

- Power voltage is DC 3 V and fed with regulated dc power supply from DC IN 3 V jack. Voltages are dc with respect to ground in no signal mode. Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1	BAND	FM
S301	FUNCTION	TAPE
S302	TAPE SELECT	NORM
S303-1	DOLBY NR	OFF
S303-2	FM SENS	LOCAL
S305	(DIRECTION)	OFF (FWD)
S601	(TAPE)	ON

SECTION 5

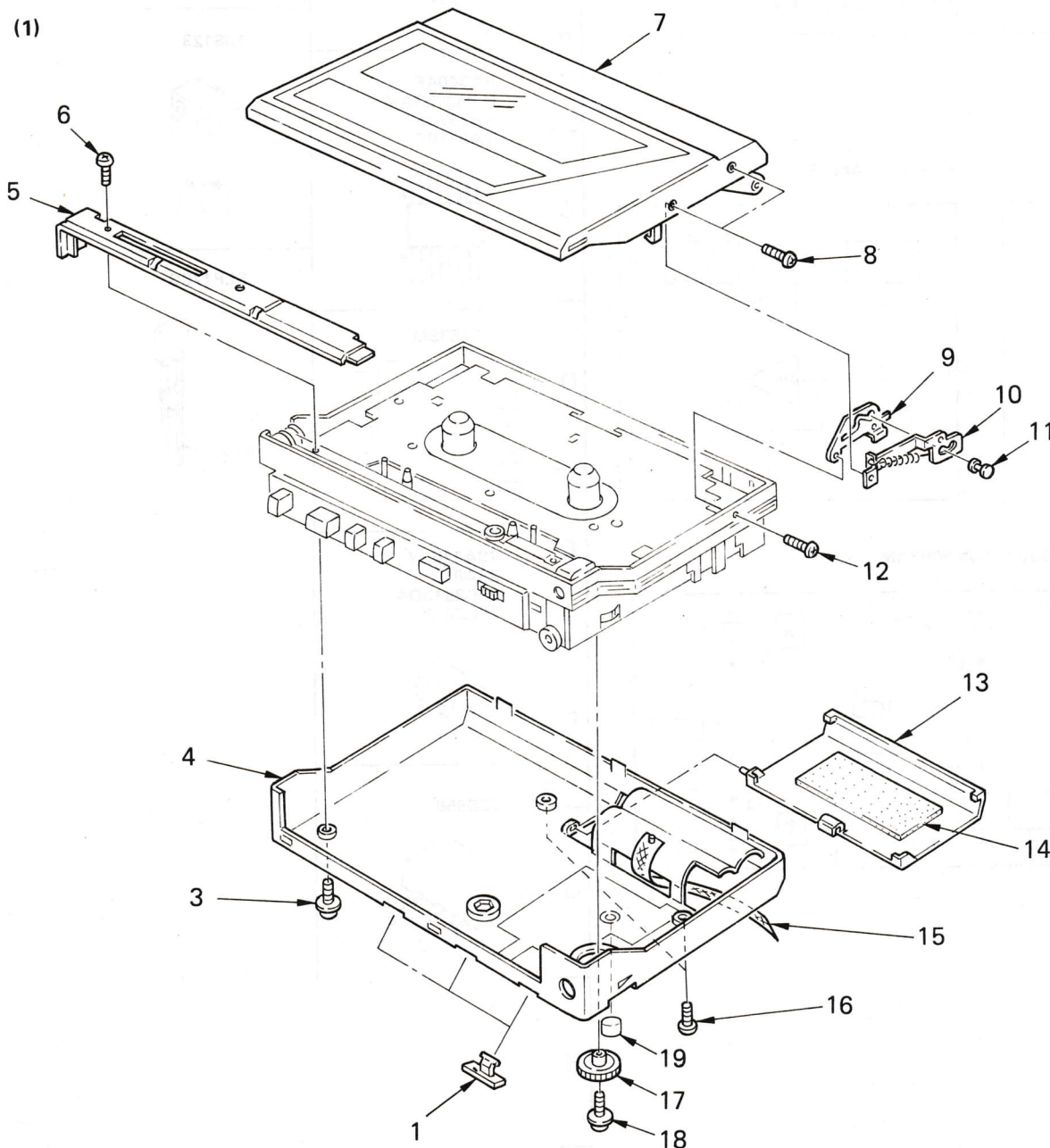
EXPLODED VIEWS AND PARTS LIST

NOTE:

The mechanical parts with no reference number in the exploded views are not supplied.

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

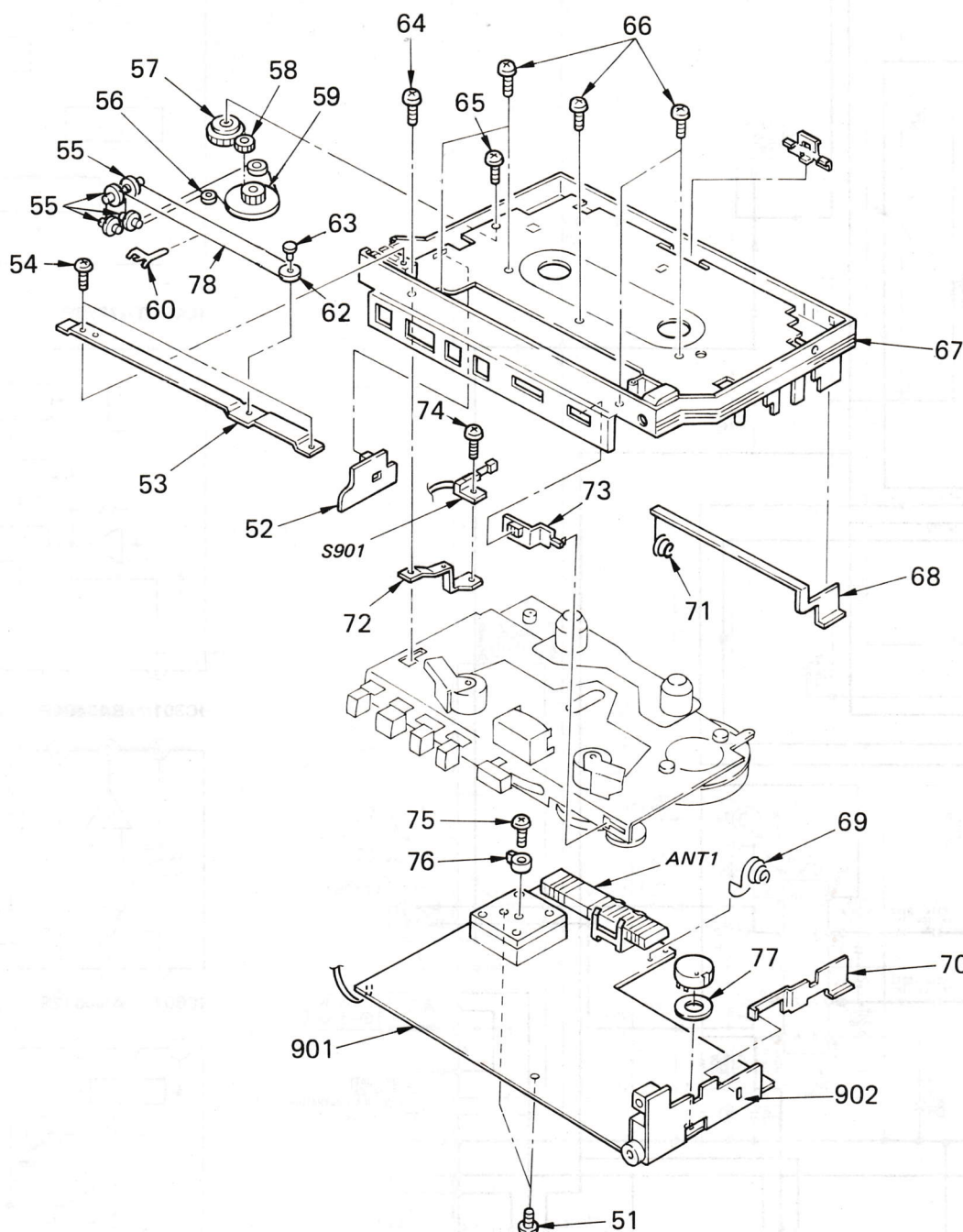
The construction parts of an assembled part are indicated with a collation number in the remark column.



No.	Part No.	Description	Remarks
1	3-335-713-01	KNOB (A), SLIDE	
3	7-627-853-47	SCREW, +P2X4	
4	X-3335-803-1	CABINET (REAR) ASSY	
5	3-335-715-01	COVER, HEAD	
6	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
7	X-3335-801-1	CASSETTE ASSY, CABINET	
8	7-627-850-57	SCREW, PRECISION +P 1.4X3.5	
9	*3-335-705-01	PLATE (B), RETURN, CASSETTE	
10	*X-3335-706-1	PLATE (A) ASSY, RETURN, CASSETTE	

No.	Part No.	Description	Remarks
11	3-325-218-01	SHAFT (B), FULCRUM	
12	7-627-850-88	+P 1.4X5	
13	3-335-735-01	LID, BATTERY CASE	
14	9-911-815-01	STOPPER	
15	9-911-816-01	RIBBON, BATTERY	
16	7-685-105-24	SCREW +P 2X8 TYPE2 SLIT	
17	3-335-733-01	KNOB, VOLUME	
18	3-703-502-72	SCREW	
19	3-335-726-01	ORNAMENT, ADJUSTMENT HOLE	

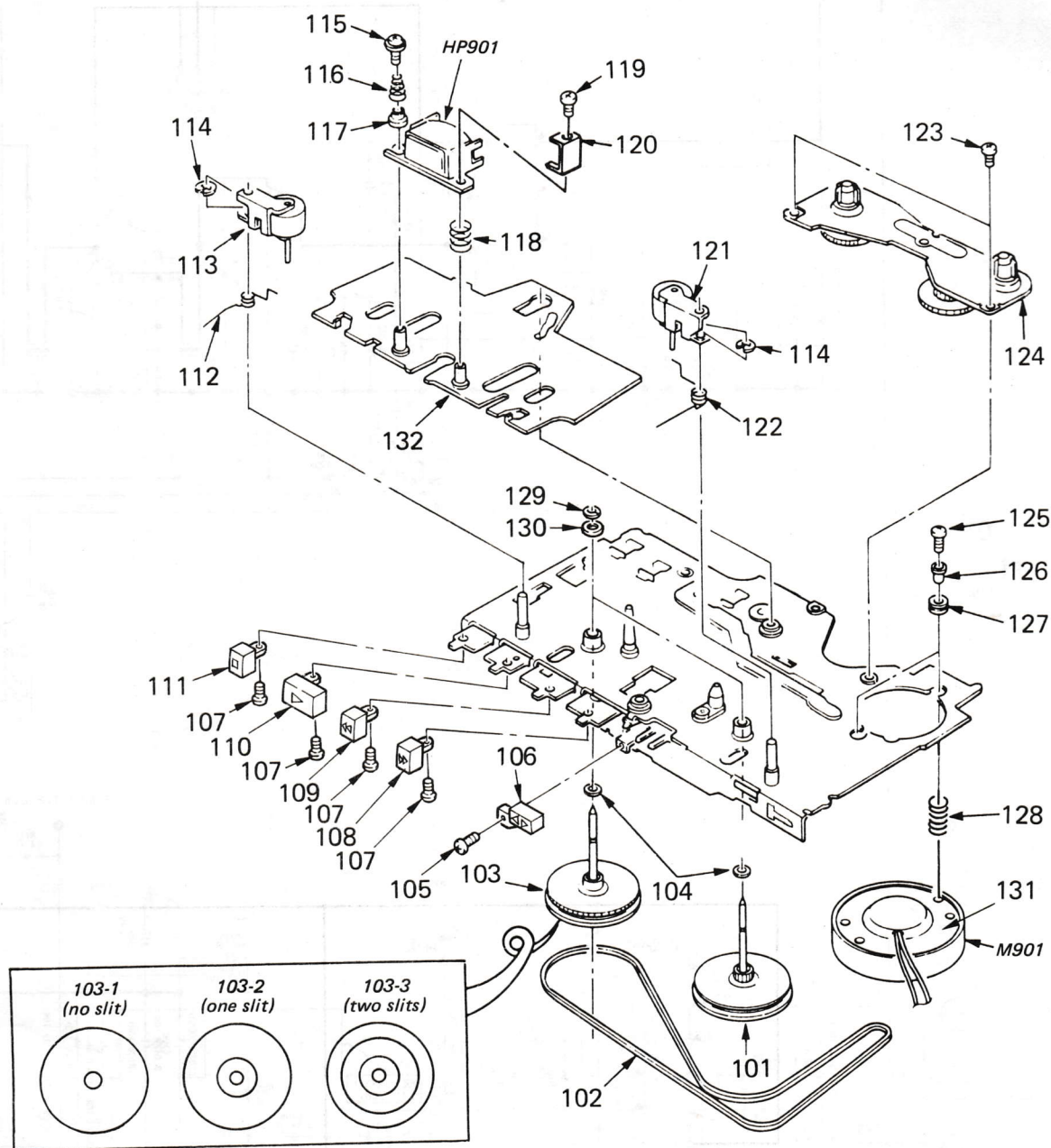
(2)



No.	Part No.	Description	Remarks
51	3-703-502-21	SCREW	
52	3-335-731-01	KNOB (B), BAND SELECTION	
53	*X-3335-707-1	PLATE ASSY, BACK	
54	3-703-454-00	SCREW, TAPPING	
55	3-335-716-01	PULLEY, SHAFT	
56	3-881-911-00	PULLEY	
57	3-335-718-01	KNOB, DIAL	
58	3-335-719-01	GEAR, DIAL	
59	3-335-736-01	DRUM, DIAL	
60	*3-335-701-01	POINTER	
62	3-562-207-00	PULLEY, DIAL CORD	
63	3-335-709-01	SHAFT, DIAL GUIDE	
64	7-627-850-08	SCREW, PRECISION +P 1.4X2	
65	3-703-816-52	SCREW (M1.4X3.5), SPECIAL HEAD	
66	7-627-850-18	SCREW, PRECISION +P 1.4X2.5	

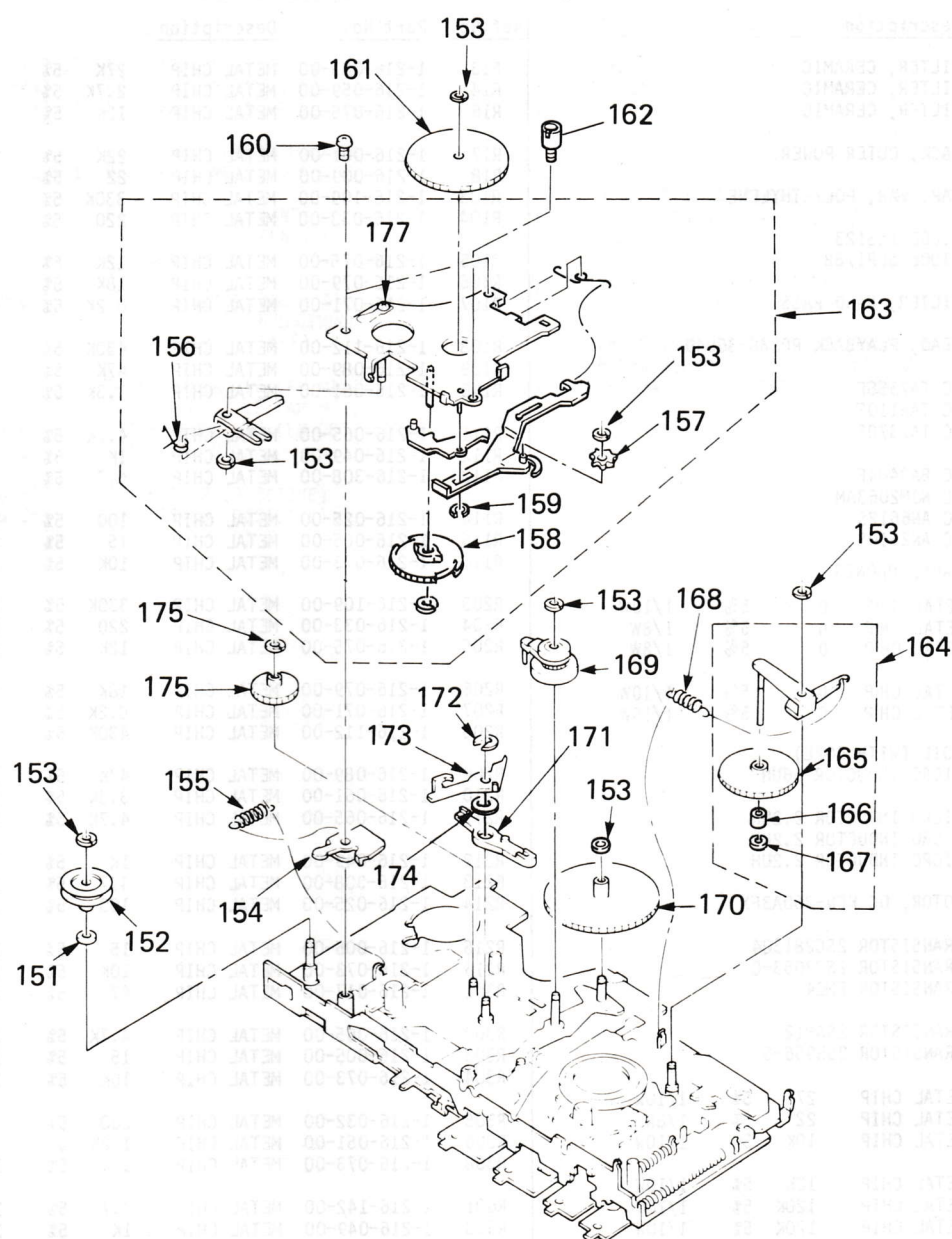
No.	Part No.	Description	Remarks	No.
67	X-3335-802-1	CABINET (FRONT) ASSY		101
68	3-335-703-01	TERMINAL BOARD (B), PLUS		102
69	3-335-707-01	SPRING (A), MINUS		103
70	3-335-702-01	TERMINAL BOARD (A), PLUS		103
71	3-335-708-01	SPRING (B), MINUS		104
72	*3-335-706-01	BRACKET, SWITCH		105
73	3-335-734-01	KNOB, R.M.		106
74	7-627-553-28	SCREW, PRECISION +P 2X2.5		107
75	7-627-552-37	SCREW, PRECISION +P 1.7X3		108
76	3-335-717-01	BUSHING, DRUM		109
77	3-330-442-01	SHEET, ADHESIVE, VOL		110
78	9-911-825-52	STRING, DIAL		111
901	A-3215-989-A	PC BOARD ASSY, MAIN		112
902	*1-618-753-11	PC BOARD, JACK		113
ANT1	1-402-209-11	ANTENNA, FERRITE-ROD (MW)		114
S601	1-570-642-01	SWITCH, LEAF (POWER)		115

(3)



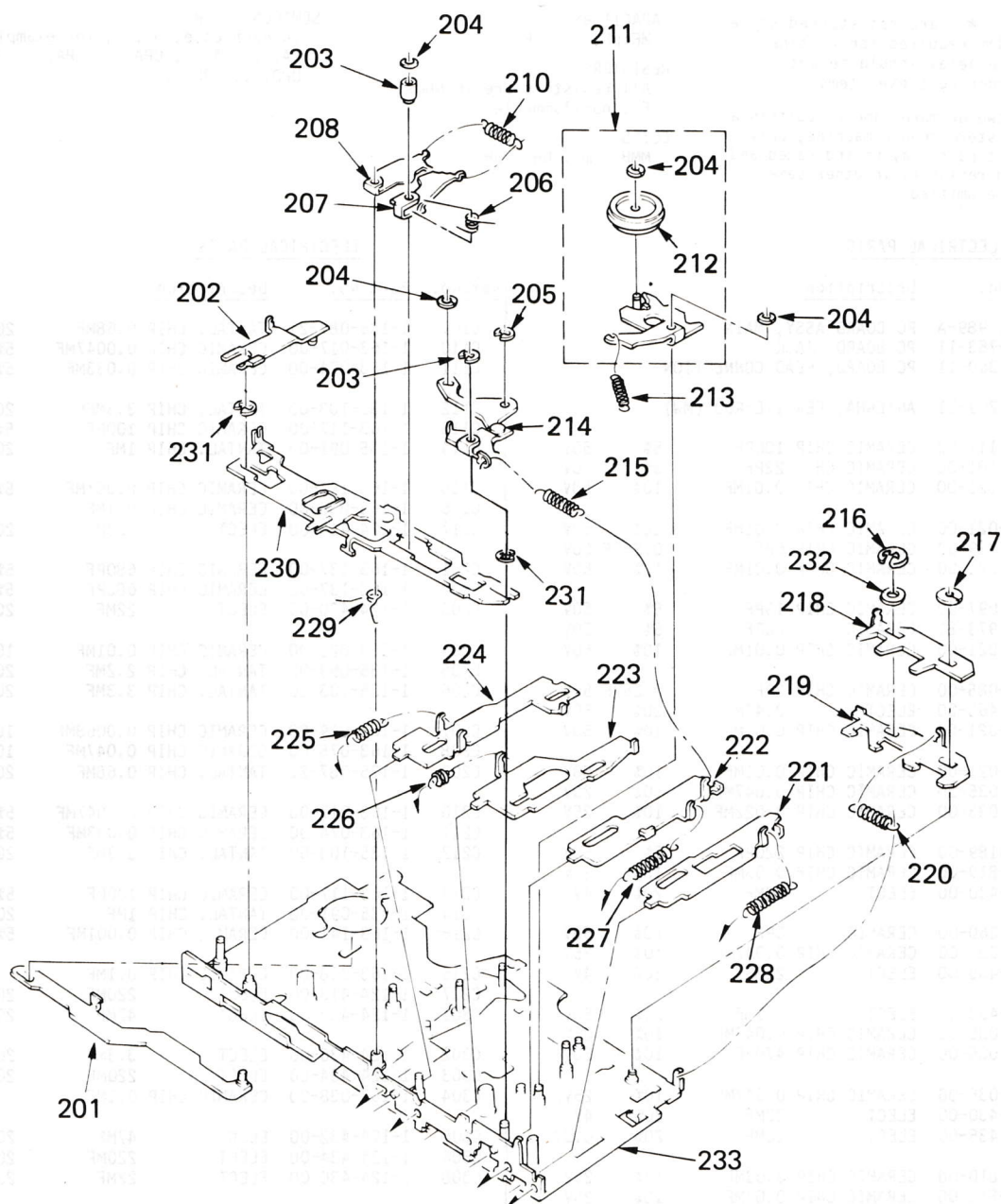
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	X-3325-206-1	FLYWHEEL (F) ASSY		116	3-318-106-01	SPRING (H), COMPRESSION	
102	3-325-387-01	BELT		117	3-325-358-01	COLLAR, AZIMUTH	
103-1	X-3335-708-1	FLYWHEEL (R) ASSY		118	3-325-380-01	SPRING, COMPRESSION (AZIMUTH)	
103-2	X-3335-709-1	FLYWHEEL (R) ASSY		119	7-627-551-58	SCREW, PRECISION +P 1.4X3	
103-3	X-3335-710-1	FLYWHEEL (R) ASSY		120	3-325-396-01	SPACER, AZIMUTH	
104	3-321-489-01	WASHER		121	X-3324-919-1	PINCH LEVER (F) ASSY	
105	3-331-047-01	SCREW (M1.4X1.4), SPECIAL HEAD		122	3-325-331-01	SPRING (F)	
106	3-335-751-01	BUTTON, DIRECTION		123	3-703-816-01	SCREW (M1.4X2.0), SPECIAL HEAD	
107	3-305-528-11	SCREW, STOPPER		124	X-3326-503-1	TABLE ASSY, REEL	
108	3-335-750-01	BUTTON, FF		125	7-627-552-48	SCREW, PRECISION +P 1.7X4	
109	3-335-749-01	BUTTON, REW		126	3-325-385-01	SPACER, MOTOR	
110	3-335-748-01	BUTTON, PLAY		127	3-570-770-00	CUSHION (A), MOTOR	
111	3-335-747-01	BUTTON, STOP		128	3-325-395-01	SPRING, COMPRESSION	
112	3-325-332-01	SPRING (R)		129	3-321-483-01	RING, RETAINING	
113	X-3324-920-1	PINCH LEVER (R) ASSY		130	3-327-714-01	WASHER	
114	3-590-768-00	RING (A), E		131	*3-324-721-12	CASE, SHIELD, MOTOR	
115	3-703-502-32	SCREW		132	X-3324-930-1	CHASSIS ASSY, HEAD	
				HP901	8-825-537-51	HEAD, PLAYBACK PP238-3604D	
				M901	8-835-188-01	MOTOR, DC KFN-26DA3FX	

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No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
151	3-325-306-01	WASHER (DIA. 1.6)		164	*X-3324-912-1	LEVER ASSY, FR GEAR	165-167
152	3-325-393-01	PULLEY, MIDWAY		165	3-324-947-01	GEAR, FR	
153	3-570-615-00	POLY-WASHER (DIA.1.2)		166	3-327-711-01	COLLAR (FR)	
154	3-324-993-01	LEVER, SELECTION, DIRECTION		167	3-318-136-01	WASHER, POLYETHYLENE, DIA. 1.2	
155	3-325-351-01	SPRING, TENSION		168	3-325-349-01	SPRING, TENSION	
156	3-324-996-01	SPRING		169	X-3324-921-5	LIMITER ASSY, FWD	
157	3-324-967-02	GEAR, MODE CHANGE		170	3-325-324-01	GEAR, IDLER	
158	3-325-363-01	GEAR, D		171	3-325-326-01	LEVER (B), SHUT-OFF	
159	3-327-710-01	RING, RETAINING		172	3-325-386-01	RING (A), C	
160	3-703-816-01	SCREW (M1.4X2.0), SPECIAL HEAD		173	3-325-357-01	LEVER, SHUT-OFF	
161	3-324-949-01	GEAR, SHUT-OFF		174	3-325-290-01	WASHER	
162	3-335-744-01	SHAFT (B), FITTING, PC BOARD		175	3-325-394-01	WASHER, STOPPER	
163	*X-3326-121-1	CHASSIS COMPLETE ASSY, D	156-159,177	176	3-325-323-01	GEAR, CAM	
				177	3-703-502-01	SCREW	

(5)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	X-3324-923-1	SLIDER ASSY, SHUT-OFF		220	3-325-353-01	SPRING, TENSION	
202	X-3324-922-1	LEVER ASSY, MODE SELECTION		221	3-325-397-01	LEVER (B), RA	
203	3-578-254-00	RING, RETAINING, E1.2		222	3-325-399-01	LEVER (B), FWD	
204	3-578-224-21	WASHER		223	3-325-325-01	LEVER, REW	
205	3-590-768-00	RING (A), E		224	3-325-365-01	LEVER, FF	
206	3-325-266-01	SPRING		225	3-325-350-01	SPRING, TENSION(POWER TENSION)	
207	3-325-264-01	LEVER (B), IDLER		226	3-325-345-01	SPRING, TENSION(POWER TENSION)	
208	3-325-265-01	LEVER (C), IDLER		227	3-326-561-01	SPRING (POWER TENSION), TENSION	
209	3-325-263-01	COLLAR (B), IDLER		228	3-325-382-01	SPRING, TENSION(POWER TENSION)	
210	3-325-318-01	SPRING, TENSION		229	3-325-341-01	SPRING	
211	X-3335-724-1	IDLER COMPLETE ASSY, FWD		230	X-3324-924-1	SLIDER ASSY, D	
212	X-3335-727-1	IDLER ASSY, FWD		231	7-624-104-04	STOP RING 2.0, TYPE -E	
213	3-325-348-01	SPRING, TENSION		232	3-327-708-01	WASHER	
214	X-3324-926-1	LEVER ASSY, H			3-327-708-11	WASHER	
215	3-325-288-01	SPRING (POWER TENSION), TENSION			3-327-708-21	WASHER	
216	7-624-102-04	E RING			3-327-708-31	WASHER	
217	3-325-386-01	RING (A), C		233	*X-3335-724-1	CHASSIS ASSY, MECHANISM	
218	3-335-752-01	LEVER (F), SW					
219	3-325-311-01	PLATE (B), LOCK					

SECTION 6

ELECTRICAL PARTS LIST

NOTE:

- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms.
- F : nonflammable

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:

UA....: μA..., UPA....: μPA..., UPC....: μPC,
UPD....: μPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	A-3215-989-A	PC BOARD ASSY, MAIN			
902	*1-618-753-11	PC BOARD, JACK			
903	1-619-360-11	PC BOARD, HEAD CONNECTION			
ANT1	1-402-209-11	ANTENNA, FERRITE-ROD (MW)			
C1	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C2	1-163-101-00	CERAMIC CHIP 22PF	5%	50V	
C3	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C4	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C5	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V	
C6	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C7	1-163-097-00	CERAMIC CHIP 15PF	5%	50V	
C8	1-101-973-81	CERAMIC 20PF	5%	50V	
C9	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C10	1-163-085-00	CERAMIC CHIP 2PF	0.25PF	50V	
C11	1-124-465-00	ELECT 0.47MF	20%	50V	
C12	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C13	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C14	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V	
C15	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V	
C16	1-163-189-00	CERAMIC CHIP 220PF	5%	50V	
C17	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V	
C18	1-124-430-00	ELECT 22MF	20%	4V	
C19	1-102-260-00	CERAMIC 5PF	10%	50V	
C21	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V	
C22	1-124-430-00	ELECT 22MF	20%	4V	
C23	1-124-463-00	ELECT 0.1MF	20%	50V	
C24	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V	
C25	1-163-005-00	CERAMIC CHIP 470PF	10%	50V	
C26	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V	
C27	1-124-430-00	ELECT 22MF	20%	4V	
C28	1-124-435-00	ELECT 10MF	20%	6.3V	
C29	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V	
C30	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V	
C31	1-124-436-00	ELECT 3.3MF	20%	25V	
C32	1-124-436-00	ELECT 3.3MF	20%	25V	
C36	1-124-435-00	ELECT 10MF	20%	6.3V	
C37	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	
C38	1-163-181-00	CERAMIC CHIP 100PF	5%	50V	
C39	1-163-189-00	CERAMIC CHIP 220PF	5%	50V	
C40	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C101	1-163-137-00	CERAMIC CHIP 680PF	5%	50V	
C102	1-163-137-00	CERAMIC CHIP 680PF	5%	50V	
C103	1-124-430-00	ELECT 22MF	20%	4V	
C104	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C105	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V	
C106	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	
C107	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	
C108	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C109	1-135-087-21	TANTAL. CHIP 0.68MF	20%	20V	
C110	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V	
C111	1-163-074-00	CERAMIC CHIP 0.033MF	5%	25V	
C112	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	
C113	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C114	1-135-091-00	TANTAL. CHIP 1MF	20%	16V	
C115	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C116	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C117	1-124-413-00	ELECT 220MF	20%	4V	
C201	1-163-137-00	CERAMIC CHIP 680PF	5%	50V	
C202	1-163-137-00	CERAMIC CHIP 680PF	5%	50V	
C203	1-124-430-00	ELECT 22MF	20%	4V	
C204	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C205	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V	
C206	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	
C207	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	
C208	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V	
C209	1-135-087-21	TANTAL. CHIP 0.68MF	20%	20V	
C210	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V	
C211	1-163-074-00	CERAMIC CHIP 0.033MF	5%	25V	
C212	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	
C213	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C214	1-135-091-00	TANTAL. CHIP 1MF	20%	16V	
C215	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C216	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C217	1-124-413-00	ELECT 220MF	20%	4V	
C301	1-124-432-00	ELECT 47MF	20%	4V	
C302	1-124-436-00	ELECT 3.3MF	20%	25V	
C303	1-124-434-00	ELECT 220MF	20%	4V	
C304	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C305	1-124-432-00	ELECT 47MF	20%	4V	
C306	1-124-434-00	ELECT 220MF	20%	4V	
C308	1-124-430-00	ELECT 22MF	20%	4V	
C309	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C310	1-124-434-00	ELECT 220MF	20%	4V	
C311	1-124-435-00	ELECT 10MF	20%	6.3V	
C312	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C313	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C314	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C315	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C316	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C317	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C318	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C601	1-124-436-00	ELECT 3.3MF	20%	25V	
C602	1-124-435-00	ELECT 10MF	20%	6.3V	
C603	1-131-345-00	TANTALUM 0.47MF	20%	35V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
CF1	1-527-879-00	FILTER, CERAMIC			
CF2	1-527-879-00	FILTER, CERAMIC			
CF3	1-567-177-00	FILTER, CERAMIC			
CN301	1-563-264-11	JACK, OUTER POWER			
CV1	1-151-528-11	CAP, VAR, POLYETHYLENE			
D1	8-719-101-23	DIODE 1SS123			
D301	8-719-912-43	DIODE SLP178B			
FL1	1-235-171-00	FILTER, BAND PASS			
HP901	8-825-537-51	HEAD, PLAYBACK PP238-3604D			
IC2	8-759-206-37	IC TA7358F			
IC3	8-759-207-22	IC TA8110F			
IC4	8-759-206-91	IC TA7370F			
IC301	8-759-909-64	IC BA3404F			
IC302	8-759-701-07	IC NJM2063AM			
IC303	8-759-802-75	IC AN6612S			
IC601	8-759-400-12	IC AN2510S			
J301	1-507-924-11	JACK, PHONES			
JR1	1-216-295-00	METAL CHIP	0	5%	1/10W
JR4	1-216-296-00	METAL CHIP	0	5%	1/8W
JR5	1-216-296-00	METAL CHIP	0	5%	1/8W
JR6	1-216-295-00	METAL CHIP	0	5%	1/10W
JR7	1-216-295-00	METAL CHIP	0	5%	1/10W
L1	1-459-666-11	COIL (WITH CORE)			
L3	1-408-572-00	MICRO INDUCTOR 56UH			
L101	1-410-013-11	MICRO INDUCTOR 2.2UH			
L201	1-410-013-11	MICRO INDUCTOR 2.2UH			
L301	1-410-013-11	MICRO INDUCTOR 2.2UH			
M901	8-835-188-01	MOTOR, DC KFN-26DA3FX			
Q1	8-729-801-08	TRANSISTOR 2SC2813Q4			
Q3	8-729-601-58	TRANSISTOR 2SC3053-C			
Q5	8-729-902-93	TRANSISTOR FMG4			
Q301	8-729-100-76	TRANSISTOR 2SA812			
Q601	8-729-400-16	TRANSISTOR 2SB956-S			
R1	1-216-011-00	METAL CHIP	27	5%	1/10W
R2	1-216-158-00	METAL CHIP	22	5%	1/8W
R3	1-216-073-00	METAL CHIP	10K	5%	1/10W
R4	1-216-073-00	METAL CHIP	10K	5%	1/10W
R5	1-216-099-00	METAL CHIP	120K	5%	1/10W
R6	1-216-099-00	METAL CHIP	120K	5%	1/10W
R7	1-216-049-00	METAL CHIP	1K	5%	1/10W
R8	1-216-043-00	METAL CHIP	560	5%	1/10W
R9	1-216-097-00	METAL CHIP	100K	5%	1/10W
R10	1-216-037-00	METAL CHIP	330	5%	1/10W
R11	1-216-049-00	METAL CHIP	1K	5%	1/10W
R12	1-216-049-00	METAL CHIP	1K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R13	1-216-083-00	METAL CHIP	27K	5%	1/10W
R14	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R16	1-216-075-00	METAL CHIP	12K	5%	1/10W
R17	1-216-081-00	METAL CHIP	22K	5%	1/10W
R18	1-216-009-00	METAL CHIP	22	5%	1/10W
R103	1-216-109-00	METAL CHIP	330K	5%	1/10W
R104	1-216-033-00	METAL CHIP	220	5%	1/10W
R105	1-216-075-00	METAL CHIP	12K	5%	1/10W
R106	1-216-079-00	METAL CHIP	18K	5%	1/10W
R107	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R108	1-216-112-00	METAL CHIP	430K	5%	1/10W
R109	1-216-089-00	METAL CHIP	47K	5%	1/10W
R110	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R111	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W
R113	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R114	1-216-025-00	METAL CHIP	100	5%	1/10W
R115	1-216-005-00	METAL CHIP	15	5%	1/10W
R116	1-216-073-00	METAL CHIP	10K	5%	1/10W
R203	1-216-109-00	METAL CHIP	330K	5%	1/10W
R204	1-216-033-00	METAL CHIP	220	5%	1/10W
R205	1-216-075-00	METAL CHIP	12K	5%	1/10W
R206	1-216-079-00	METAL CHIP	18K	5%	1/10W
R207	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R208	1-216-112-00	METAL CHIP	430K	5%	1/10W
R209	1-216-089-00	METAL CHIP	47K	5%	1/10W
R210	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R211	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R213	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R214	1-216-025-00	METAL CHIP	100	5%	1/10W
R215	1-216-005-00	METAL CHIP	15	5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R301	1-216-017-00	METAL CHIP	47	5%	1/10W
R302	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R303	1-216-005-00	METAL CHIP	15	5%	1/10W
R304	1-216-073-00	METAL CHIP	10K	5%	1/10W
R305	1-216-032-00	METAL CHIP	200	5%	1/10W
R306	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W
R601	1-216-142-00	METAL CHIP	4.7	5%	1/8W
R603	1-216-049-00	METAL CHIP	1K	5%	1/10W
R604	1-216-068-00	METAL CHIP	6.2K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV1	1-230-990-11	RES, ADJ, METAL GLAZE 10K
RV101	1-237-293-21	RES, ADJ, METAL GLAZE 10K
RV201	1-237-293-21	RES, ADJ, METAL GLAZE 10K
RV301	1-230-593-11	KES, VAR, CARBON 10K/10K
RV601	1-230-989-11	RES, ADJ, METAL GLAZE 4.7K
S1	1-570-640-11	SWITCH, SLIDE (BAND)
S301	1-570-639-11	SWITCH, SLIDE (FUNCTION)
S302	1-570-639-11	SWITCH, SLIDE (TAPE SELECT)
S303	1-570-639-11	SWITCH, SLIDE (DOLBY NR, FM SENS)
S305	1-570-641-11	SWITCH, LEAF (DIRECTION)
S601	1-570-642-01	SWITCH, LEAF (TAPE)
T1	1-404-673-11	TRANSFORMER, IF (FM MIX)
T2	1-404-670-11	TRANSFORMER, IF (AM MIX)
T3	1-404-675-11	TRANSFORMER, IF (FM DET)
T4	1-406-198-11	COIL (AM OSC)
THP601	1-806-800-11	THERMISTOR (POSITIVE)
THP602	1-806-363-11	THERMISTOR (POSITIVE)

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-335-756-01	CUSHION (B)
3-335-760-01	CUSHION (A)
3-335-807-01	(Canadian)...INDIVIDUAL CARTON
3-335-808-01	(US, E)INDIVIDUAL CARTON
3-527-213-00	LABEL, SERIAL NUMBER
3-701-625-00	BAG, POLYETHYLENE
3-765-267-21	(E)MANUAL, INSTRUCTION
3-765-267-21	(US, Canadian)...MANUAL, INSTRUCTION
3-765-267-32	(Canadian)MANUAL, INSTRUCTION
3-795-748-21	SAFETY INSTRUCTIONS, HEADPHONE
8-952-266-94	HEADPHONE MDR-A10L/B SET
X-3334-010-1	CASE ASSY, CARRYING

